

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.12.96
Test oil : ISO 4113

Combination No. : 0 402 846 070

Injection pump
Pump designation : PE6P120A320RS8040
EP type number : 0 412 826 034

Governor
Governor design. : RQV300...1050PA1247
Governor no. : 0 421 814 163

Cust. part No. : 11031221-P04v.11.96

Customer-spec. information

Customer : VCE
Motor : TD 103 KCE
Power KW : 186.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 165
Tolerance l/h : ± 10.0

Test nozzle holde
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 12.00
Tolerance mm : ± 1.00

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 500

Rack travel in mm : 12.00
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 322.0

cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000s. : ± 4.0

Spreed
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000s. : 11.0

Rated speed rpm : 320

Rack travel in mm : 5.20
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 50.0
cm³/1000 strokes : ± 2.5
Check tolerance
cm³/1000s. : ± 5.0
Spreed
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000s. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 320
guide sleeve
travel mm : 1.34
Tolerance mm : ± 0.20

Rated speed rpm : 1112
guide sleeve
travel mm : 7.91
Tolerance mm : ± 0.15

Rated speed rpm : 806
guide sleeve
travel mm : 5.20
Tolerance mm : ± 0.25

Rated speed rpm : 530
guide sleeve
travel mm : 3.11
Tolerance mm : ± 0.25

Rated speed rpm : 1400
guide sleeve
travel mm : 11.50
Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1220

Rack travel in mm : 11.00
Tolerance mm : ± 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 500
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 322.0
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000s. : ± 4.0
Spreed
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 11.0

CONTROL LEVER

control lever
position degree : 45.0
tolerance degree : ± 4.0

control lever
position degree : 112.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 9.80
Rated speed rpm : 1090
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1170
Tolerance 1/min : ± 15

rack travel mm : 0.50
Tolerance mm : ± 0.50
Rated speed rpm : 1250

LOW IDLE

control lever
position degree : 84.0
tolerance degree : ± 4.0

control lever
position degree : 17.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 320
rack travel mm : 5.20
Tolerance mm : ± 0.10

Rated speed rpm : 220

CRT mm min. : > 7.80

Rated speed rpm : 380

TORQUE CONTROL

Rated speed rpm : 500
rack travel mm : 12.00
Tolerance mm : ± 0.05

Rated speed rpm : 1050
rack travel mm : 10.80
Tolerance mm : ± 0.10

Rated speed rpm : 720
rack travel mm : 11.10
Tolerance mm : ± 0.15

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 12.00
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 8.70
Tolerance mm : ± 0.10

Rated speed rpm : 500

Pressure hPa : 900
rack travel mm : 2.80
Tolerance mm : ± 0.20

Pressure hPa : 230
rack travel mm : 0.25
Tolerance mm : ± 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 224.0
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 212.0
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0

BREAKAWAY

Rack travel in mm : 9.80
Rated speed rpm : 1090
Tolerance 1/min : ± 5

LOW IDLE

Rated speed rpm : 320
Del. quantity
cm³/1000 strokes : 50.0
cm³/1000 strokes : ± 2.5
Check tolerance
cm³/1000S. : ± 5.0
Speed
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.12.96

Test oil : ISO 4113

Combination No. : 0 402 846 077

Injection pump

Pump designation : PE6P120A320RS8043

EP type number : 0 412 826 035

Governor

Governer design. : RQV300...1050PA1247

Governer no. : 0 421 814 163

Cust. part No. : 11031331-P02v.11.96

Customer-spec. information

Customer : VCE

Motor : TD 103 KCE

Power KW : 189.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5

Tolerance bar : ± 0.1

Overflow quantity

min. l/h : 205

Tolerance l/h : ± 20.0

Test nozzle holde
assembly

: 1 688 901 103

Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 4.25

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 11.00

Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.30

Check

tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 500

Rack travel in mm : 12.90

Tolerance mm : ± 0.05

<hr/>	
Del. quantity	
cm3/1000 strokes :	322.0
<hr/>	
cm3/1000 strokes :	+ 1.0
<hr/>	
Check tolerance	
cm3/1000S. :	+ 4.0
<hr/>	
Spreed	
cm3/1000 strokes :	8.0
<hr/>	
Check tolerance	
cm3/1000S. :	11.0
<hr/>	
Rated speed rpm :	320
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Rack travel in mm :	4.60
Tolerance mm :	+ 0.10
Del. quantity	
cm3/1000 strokes :	50.0
cm3/1000 strokes :	+ 2.5
Check tolerance	
cm3/1000S. :	+ 5.0
Spreed	
cm3/1000 strokes :	5.0
Check tolerance	
cm3/1000S. :	8.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm :	320
guide sleeve	
travel mm :	1.34
Tolerance mm :	+ 0.20
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Rated speed rpm :	1102
guide sleeve	
travel mm :	7.80
Tolerance mm :	+ 0.15
<hr/>	
Rated speed rpm :	802
guide sleeve	
travel mm :	5.18
Tolerance mm :	+ 0.25
<hr/>	
Rated speed rpm :	530
guide sleeve	
travel mm :	3.11
Tolerance mm :	+ 0.25
<hr/>	
Rated speed rpm :	1400
guide sleeve	
travel mm :	11.50

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Tolerance mm :	+ 0.50
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GUIDE SLEEVE POSITION

Rated speed rpm :	1250
Rack travel in mm :	10.50
Tolerance mm :	+ 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm :	500
Aneroid pressure	
hPa :	1500
Del. quantity	
cm3/1000 strokes :	322.0
cm3/1000 strokes :	+ 1.0
Check tolerance	
cm3/1000S. :	+ 4.0
Spreed	
cm3/1000 strokes :	8.0
Check tolerance	
cm3/1000S. :	11.0

CONTROL LEVER

control lever	
position degree :	45.0
tolerance degree :	+ 4.0

control lever	
position degree :	110.0
tolerance degree :	+ 4.0

RATED SPEED

rack travel mm :	10.80
Rated speed rpm :	1090
Tolerance 1/min :	+ 5
<hr/>	
rack travel mm :	4.00
Rated speed rpm :	1190
Tolerance 1/min :	+ 15
<hr/>	
rack travel mm :	0.50
Tolerance mm :	+ 0.50
Rated speed rpm :	1250

LOW IDLE

control lever	
position degree :	82.0
tolerance degree :	+ 4.0

control lever
position degree : 18.0
tolerance degree : +- 4.0

Testing:

Rated speed rpm : 320
rack travel mm : 4.60
Tolerance mm : +- 0.10

Rated speed rpm : 220
CRT mm min. : > 7.40

Rated speed rpm : 380

TORQUE CONTROL

Rated speed rpm : 500
rack travel mm : 12.90
Tolerance mm : +- 0.05

Rated speed rpm : 1050
rack travel mm : 11.80
Tolerance mm : +- 0.10

Rated speed rpm : 720
rack travel mm : 12.10
Tolerance mm : +- 0.15

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 12.90
Tolerance mm : +- 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 9.50
Tolerance mm : +- 0.20

Rated speed rpm : 500

Pressure hPa : 970
rack travel mm : 2.90
Tolerance mm : +- 0.20

Pressure hPa : 230
rack travel mm : 0.25
Tolerance mm : +- 0.05

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FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 224.0
cm³/1000 strokes : +- 1.0
Check tolerance
cm³/1000S. : +- 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 212.0
cm³/1000 strokes : +- 1.0
Check tolerance
cm³/1000S. : +- 4.0

BREAKAWAY

Rack travel in mm : 10.80
Rated speed rpm : 1090
Tolerance 1/min : +- 5

LOW IDLE

Rated speed rpm : 320
Del. quantity
cm³/1000 strokes : 50.0
cm³/1000 strokes : +- 2.5
Check tolerance
cm³/1000S. : +- 5.0
Speed
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
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Edition : 20.12.96

Test oil : ISO 4113

Combination No. : 0 402 946 026

Injection pump

Pump designation : PES6P120A720RS8045

EP type number : 0 412 926 028

Governor

Governer design. : RQV350...1100PA1305K

Governer no. : 0 421 815 967

Cust. part No. : 1388631

Customer-spec. information

Customer : SCANIA

Motor : DSI1174M

TEST BENCH REQUIREMENTS

Inlet line : EHAB

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0

Tolerance bar : ± 0.1

Overflow quantity

min. l/h : 75

Tolerance l/h : ± 10.0

Test nozzle holde assembly

: 1 688 901 104

Opening pressure

bar : 251.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 3.65

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.30

Check

tolerance °NW : ± 0.50

Start of delivery blocking

Tolerance : ± 0.10

Check

tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 11.75
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 250.0

cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 7.0

Speed
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 14.0

Rated speed rpm : 350

Rack travel in mm : 4.10
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 30.0

cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Speed
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 350
guide sleeve
travel mm : 2.00
Tolerance mm : \pm 0.20

Rated speed rpm : 1165
guide sleeve
travel mm : 10.15
Tolerance mm : \pm 0.15

Rated speed rpm : 755
guide sleeve
travel mm : 6.14
Tolerance mm : \pm 0.25

Rated speed rpm : 460
guide sleeve
travel mm : 4.07
Tolerance mm : \pm 0.25

Rated speed rpm : 1400
guide sleeve
travel mm : 13.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1250

Rack travel in mm : 10.70
Tolerance mm : \pm 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : 1500

Del. quantity
cm³/1000 strokes : 250.0

cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 7.0

Speed
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 14.0

CONTROL LEVER

control lever
position degree : 64.0
tolerance degree : \pm 4.0

control lever
position degree : 118.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 10.70
Rated speed rpm : 1145
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1235
Tolerance 1/min : \pm 15

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 71.0
tolerance degree : \pm 4.0

control lever
position degree : 17.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 4.10
Tolerance mm : \pm 0.10

Rated speed rpm : 250

CRT mm min. : $>$ 6.50

Rated speed rpm : 275

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 11.75
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : 10.90
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1100
Pressure hPa : 1500
rack travel mm : 11.75
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 1100
rack travel mm : 7.10
Tolerance mm : \pm 0.20

Rated speed rpm : 1100

Pressure hPa : 340
rack travel mm : 8.35
Tolerance mm : \pm 0.25

Pressure hPa : 800
rack travel mm : 10.65
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 700
cm³/1000 strokes : \pm 4.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 163.0
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

BREAKAWAY

Rack travel in mm : 10.70
Rated speed rpm : 1145
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 7.10
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 100.0
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 24.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 30.0
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 20.12.96
Test oil : ISO 4113

Combination No. : 0 403 476 112

Injection pump
Pump designation : PES6MW100/720RS1225
: -1
EP type number : 0 413 406 220

Governor
Governor design. : RSV400...1000MW1A338
: -1
Governor no. : 0 420 085 184

Cust. part No. :

Customer-spec. information
Customer : LIEBHERR
Motor : D 916 TI
Power KW : 173.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 049

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : ± 1.0

Prestroke mm : 3.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.51
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 13.25
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 145.0

cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000s. : ± 4.0

Speed
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 400

Rack travel in mm : 6.80

Tolerance mm : ± 0.10

Del. quantity

cm³/1000 strokes : 22.5

cm³/1000 strokes : ± 2.0

Check tolerance

cm³/1000S. : ± 4.5

Spreed

cm³/1000 strokes : 3.5

Check tolerance

cm³/1000S. : 5.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.65

Tolerance mm : ± 0.35

governor spring

pre-tension

click setting x : 5.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000

Aneroid pressure

hPa : 1000

Del. quantity

cm³/1000 strokes : 145.0

cm³/1000 strokes : ± 1.0

Check tolerance

cm³/1000S. : ± 4.0

Spreed

cm³/1000 strokes : 4.0

Check tolerance

cm³/1000S. : 7.5

CONTROL LEVER

control lever

position degree : 100.0

tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 12.20

Rated speed rpm : 1025

Tolerance 1/min : ± 5

rack travel mm : 4.00

Rated speed rpm : 1075

Tolerance 1/min : ± 15

rack travel mm : 1.00

Tolerance mm : ± 0.70

Rated speed rpm : 1200

rack travel mm : 4.00

Rated speed rpm : 1085

LOW IDLE

control lever

position degree : 74.0

tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 400

rack travel mm : 6.30

Testing:

Rated speed rpm : 400

rack travel mm : 6.80

Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1000

rack travel mm : 13.25

Tolerance mm : ± 0.05

Rated speed rpm : 500

rack travel mm : 13.25

Tolerance mm : ± 0.05

Rated speed rpm : 700

rack travel mm : 13.25

Tolerance mm : ± 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 550
Pressure hPa : 1000
rack travel mm : 13.25
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 550
rack travel mm : 11.20
Tolerance mm : \pm 0.10

Rated speed rpm : 550

Pressure hPa : 330
rack travel mm : 11.65
Tolerance mm : \pm 0.05

Pressure hPa : 510
rack travel mm : 12.60
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 139.0
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

Aneroid pressure
hPa : 1000
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 146.5
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0

Aneroid pressure
hPa : -
Rated speed rpm : 550

Del. quantity
cm³/1000 strokes : 105.0
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

BREAKAWAY

Rack travel in mm : 12.20
Rated speed rpm : 1025
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : \pm 0.75
Del. quantity
cm³/1000 strokes : 132.0
cm³/1000 strokes : \pm 5.0
Check tolerance
cm³/1000S. : \pm 8.0

LOW IDLE

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 22.5
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 01.04.95
Test oil : ISO 4113

Part no. : 0 460 413 001
Pump designation : VE3/11F1250L163

Customer-spec. information
Customer : IVECO-FIAT
Motor : 8035.05.200
Power KW : 42.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 020

Opening pressure
bar : 172
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Prestroke

(as of UT) mm : 0,2
Tolerance mm ± : ±0,02
Check
tolerance mm ± : ±0,04

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 800

Setting mm : 2.7
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 800
Supply pump
pressure bar : 4.1
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 69.0
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 3.5
Shutoff solenoid
Volt : 12

IDLE SETTING

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 23.0
Tolerance
cm³/1000 str. ± : 2.0
Shutoff solenoid
Volt : 12
Spread
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000s. : 3.5

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1400
Del. quantity
cm³/1000 strokes : 20.0

Tolerance
cm³/1000 str. + : 2.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 105.0
Tolerance
cm³/1000 str. + : 25.0
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1200
SV travel mm : 6.0
Tolerance mm + : 0.4
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
SV travel mm : 1.2
Tolerance mm + : 0.4
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1200
Supply pump
pressure bar : 5.8
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Supply pump
pressure bar : 2.8
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 1250

Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s + : 41.6

Check tolerance
ccm/10s + : 41.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s + : 22.2

Check tolerance
ccm/10s + : 22.2
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1400
Del. quantity
cm³/1000 strokes : 20.0
Tolerance
cm³/1000 str. + : 2.0
Check tolerance
cm³/1000S. + : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1350
Del. quantity
cm³/1000 strokes : 50.0
Tolerance
cm³/1000 str. + : 8.0
Check tolerance
cm³/1000S. + : 10.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1460
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : 70.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 3.5

Shutoff solenoid
 Volt : 12

 Rated speed rpm : 500
 Del. quantity
 cm³/1000 strokes : 60.5
 Tolerance
 cm³/1000 str. +- : 1.5
 Check tolerance
 cm³/1000S. +- : 3.5
 Shutoff solenoid
 Volt : 12

 Rated speed rpm : 750
 Del. quantity
 cm³/1000 strokes : 69.0
 Tolerance
 cm³/1000 str. +- : 0.5
 Check tolerance
 cm³/1000S. +- : 3.0
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 350
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. +- : 1.5
 Check tolerance
 cm³/1000S. +- : 1.5
 Spread
 cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 350
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. +- : 1.5
 Spread
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. +- : 1.5
 Spread
 cm³/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 475
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. +- : 1.5

Check tolerance
 cm³/1000S. +- : 1.5
 Shutoff solenoid
 Volt : 12

START TRANSITION

Rated speed rpm : 250
 Del. quantity
 cm³/1000 strokes : 45.0
 Tolerance
 cm³/1000 str. +- : 20.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 150
 Del. quantity
 cm³/1000 strokes : 115.0
 Tolerance
 cm³/1000 str. +- : 25.0
 Shutoff solenoid
 Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : -
 Dimension KF mm : 5,2
 Tolerance mm +- : +-0,2
 Dimension MS mm : 1,6
 Tolerance mm +- : +-0,2

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 37,9..39,9

Control lever
position YB mm : 44,5..49,5

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 01.04.95
Test oil : ISO 4113

Part no. : 0 460 413 002
Pump designation : VE3/11F1250L163-1

Customer-spec. information
Customer : IVECO-FIAT
Motor : 8035.06.200
Power KW : 38.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 020

Opening pressure
bar : 172
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Prestroke

A17

(as of UT) mm : 0,2
Tolerance mm ± : ±0,02
Check
tolerance mm ± : ±0,04

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1000

Setting mm : 3.0
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1000
Supply pump
pressure bar : 6.0
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 750
Del. quantity
cm3/1000 strokes : 65.5
Tolerance
cm3/1000 str. ± : 0.5
Spread
cm3/1000 strokes : 3.5
Shutoff solenoid
Volt : 12

IDLE SETTING

Rated speed rpm : 400
Del. quantity
cm3/1000 strokes : 17.5
Tolerance
cm3/1000 str. ± : 2.0
Shutoff solenoid
Volt : 12
Spread
cm3/1000 strokes : 3.5
Check tolerance
cm3/1000S. : 3.5

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1350

Del. quantity
cm³/1000 strokes : 45.0
Tolerance
cm³/1000 str. + : 2.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 105.0
Tolerance
cm³/1000 str. + : 25.0
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1250
SV travel mm : 4.8
Tolerance mm + : 0.4
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 800
SV travel mm : 1.5
Tolerance mm + : 0.4
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1250
Supply pump
pressure bar : 7.1
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Supply pump
pressure bar : 3.7
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 1250
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s + : 41.6

Check tolerance
ccm/10s + : 41.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s + : 22.2

Check tolerance
ccm/10s + : 22.2
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1350
Del. quantity
cm³/1000 strokes : 45.0
Tolerance
cm³/1000 str. + : 2.0
Check tolerance
cm³/1000s. + : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1400
Del. quantity
cm³/1000 strokes : 10.0
Check tolerance
cm³/1000s. + : 10.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1450
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000s. + : 1.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : 65.0
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000s. + : 3.0

Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Del. quantity
 cm³/1000 strokes : 58.0
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000S. + : 3.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 750
 Del. quantity
 cm³/1000 strokes : 65.5
 Tolerance
 cm³/1000 str. + : 0.5
 Check tolerance
 cm³/1000S. + : 3.0
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF
 CONTROL LEVER, IDLE STOP

Rated speed rpm : 400
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000S. + : 1.5
 Spread
 cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 400
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. + : 1.5
 Spread
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. + : 1.5
 Spread
 cm³/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 475
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. + : 1.5

Check tolerance
 cm³/1000S. + : 1.5
 Shutoff solenoid
 Volt : 12

START TRANSITION

Rated speed rpm : 250
 Del. quantity
 cm³/1000 strokes : 40.0
 Tolerance
 cm³/1000 str. + : 10.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 150
 Del. quantity
 cm³/1000 strokes : 115.0
 Tolerance
 cm³/1000 str. + : 25.0
 Shutoff solenoid
 Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : -
 Dimension KF mm : 5,2
 Tolerance mm +- : +0,2
 Dimension MS mm : 1,6
 Tolerance mm + : +0,2

CONTROL LEVER POSITION
 SET

Control lever
 position YA mm : 37,9..39,9

Control lever
 position YB mm : 44,0..49,0

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.10.95
Test oil : ISO 4113
Part no. : 0 460 413 004
Pump designation : VE3/11F1250L163-2

Customer spec. information
Customer : IVECO-FIAT
Motor : 8035.06.220
Power kW : 33.0

TEST BENCH REQUIREMENTS

Calibrating oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 020

Opening pressure
bar : 172
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Prestroke

A20

(as of UT) mm : 0,2
Tolerance mm ± : ±0,02
Check
tolerance mm ± : ±0,04

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 800
Setting mm : 3.0
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 800
Supply pump
pressure bar : 5.0
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 59.5
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 3.5
Shutoff solenoid
Volt : 12

IDLE SETTING

Rated speed rpm : 375
Del. quantity
cm³/1000 strokes : 12.5
Tolerance
cm³/1000 str. ± : 2.0
Shutoff solenoid
Volt : 12
Spread
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 3.5

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1400

Del. quantity
 cm³/1000 strokes : 15.0
 Tolerance
 cm³/1000 str. +- : 3.0
 Shutoff solenoid
 Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 105.0
 Tolerance
 cm³/1000 str. +- : 25.0
 Shutoff solenoid
 Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1000
 SV travel mm : 4.9
 Tolerance mm +- : 0.4
 Check
 tolerance mm +- : 0.7
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 600
 SV travel mm : 1.2
 Tolerance mm +- : 0.4
 Check
 tolerance mm +- : 0.7
 Shutoff solenoid
 Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1250
 Supply pump
 pressure bar : 7.0
 Tolerance bar +- : 0.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Supply pump
 pressure bar : 3.5
 Tolerance bar +- : 0.3
 Shutoff solenoid
 Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 1250
 Overflow quantity
 ccm/10s : 97.2
 Tolerance
 ccm/10s +- : 41.6

Check tolerance
 ccm/10s +- : 41.6
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Overflow quantity
 ccm/10s : 63.8
 Tolerance
 ccm/10s +- : 22.2

Check tolerance
 ccm/10s +- : 22.2
 Shutoff solenoid
 Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1400
 Del. quantity
 cm³/1000 strokes : 15.0
 Tolerance
 cm³/1000 str. +- : 3.0
 Check tolerance
 cm³/1000s. +- : 6.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1350
 Del. quantity
 cm³/1000 strokes : 45.0
 Tolerance
 cm³/1000 str. +- : 8.0
 Check tolerance
 cm³/1000s. +- : 10.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1450
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. +- : 1.5
 Check tolerance
 cm³/1000s. +- : 1.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1250
 Del. quantity
 cm³/1000 strokes : 52.5
 Tolerance
 cm³/1000 str. +- : 1.5

Check tolerance
cm³/1000S. + : 3.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 55.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 3.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 59.5
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 3.5
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 375
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5
Spread
cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 375
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. + : 1.5
Spread
cm³/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 1.5

Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 425
Del. quantity
cm³/1000 strokes : 5.0
Tolerance
cm³/1000 str. + : 3.0
Check tolerance
cm³/1000S. + : 4.0
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 250
Del. quantity
cm³/1000 strokes : 35.0
Tolerance
cm³/1000 str. + : 15.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 150
Del. quantity
cm³/1000 strokes : 105.0
Tolerance
cm³/1000 str. + : 25.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : -
Dimension KF mm : 5,5
Tolerance mm + : +0,2
Dimension MS mm : 1,6
Tolerance mm + : +0,2

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 37,9..39,9

Control lever
position YB mm : 46,0..51,0

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.03.95
Test oil : ISO 4113

Part no. : 0 460 413 005
Pump designation : VE3/11F1200L163-3

Customer-spec. information
Customer : IVECO-FIAT
Motor : 8035.05.265
Power KW : 35.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 020

Opening pressure
bar : 172
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Prestroke

A24

(as of UT) mm : 0,2
Tolerance mm ± : ±0,02
Check
tolerance mm ± : ±0,04

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 800
Setting mm : 3.4
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 24

SUPPLY PUMP PRESSURE

Rated speed rpm : 800
Supply pump
pressure bar : 4.5
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 24

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 63.0
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 3.5
Shutoff solenoid
Volt : 24

IDLE SETTING

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 15.0
Tolerance
cm³/1000 str. ± : 2.0
Shutoff solenoid
Volt : 24
Spread
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 3.5

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1350

Del. quantity
cm³/1000 strokes : 18.0
Tolerance
cm³/1000 str. ± : 3.0
Shutoff solenoid
Volt : 24

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 115.0
Tolerance
cm³/1000 str. ± : 25.0
Shutoff solenoid
Volt : 24

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1200
SV travel mm : 6.5
Tolerance mm ± : 0.4
Check
tolerance mm ± : 0.7
Shutoff solenoid
Volt : 24

Rated speed rpm : 500
SV travel mm : 1.0
Tolerance mm ± : 0.4
Check
tolerance mm ± : 0.7
Shutoff solenoid
Volt : 24

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1200
Supply pump
pressure bar : 6.3
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 24

Rated speed rpm : 500
Supply pump
pressure bar : 3.2
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 24

OVERFLOW QUANTITY

Rated speed rpm : 1250
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s ± : 41.6

Check tolerance
ccm/10s ± : 41.6
Shutoff solenoid
Volt : 24

Rated speed rpm : 500
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s ± : 22.2

Check tolerance
ccm/10s ± : 22.2
Shutoff solenoid
Volt : 24

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1350
Del. quantity
cm³/1000 strokes : 18.0
Tolerance
cm³/1000 str. ± : 3.0
Check tolerance
cm³/1000s. ± : 6.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 1300
Del. quantity
cm³/1000 strokes : 41.0
Tolerance
cm³/1000 str. ± : 8.0
Check tolerance
cm³/1000s. ± : 10.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 1400
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000s. ± : 1.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : 57.5
Tolerance
cm³/1000 str. ± : 1.5

Check tolerance
cm³/1000S. + : 3.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 61.0
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 3.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 63.0
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 3.0
Shutoff solenoid
Volt : 24

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5
Spread
cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. + : 1.5
Spread
cm³/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 420
Del. quantity
cm³/1000 strokes : 1.5

Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5
Shutoff solenoid
Volt : 24

START TRANSITION

Rated speed rpm : 250
Del. quantity
cm³/1000 strokes : 45.0
Tolerance
cm³/1000 str. + : 20.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 150
Del. quantity
cm³/1000 strokes : 125.0
Tolerance
cm³/1000 str. + : 25.0
Shutoff solenoid
Volt : 24

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : -
Dimension KF mm : 5,5
Tolerance mm + : +0,2
Dimension MS mm : 1,6
Tolerance mm + : +0,2

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 37,9..39,9

Control lever
position YB mm : 44,5..49,5

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 01.04.95
Test oil : ISO 4113
Part no. : 0 460 414 013
Pump designation : VE4/11F1250L164

Customer-spec. information
Customer : IVECO-FIAT
Motor : 8045.05.200
Power KW : 58.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holder
assembly : 1 688 901 020

Opening pressure
bar : 172
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Prestroke

A27

(as of UT) mm : 0,2
Tolerance mm ± : ±0,02
Check
tolerance mm ± : ±0,04

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 800
Setting mm : 3.2
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 800
Supply pump
pressure bar : 5.4
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 69.0
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 3.5
Shutoff solenoid
Volt : 12

IDLE SETTING

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 23.0
Tolerance
cm³/1000 str. ± : 2.0
Shutoff solenoid
Volt : 12
Spread
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 3.5

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1350

Del. quantity
cm³/1000 strokes : 44.0
Tolerance
cm³/1000 str. + : 2.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 115.0
Tolerance
cm³/1000 str. + : 25.0
Shutoff solenoid
Volt : 12

INJECTION PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1250
SV travel mm : 7.2
Tolerance mm + : 0.4
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
SV travel mm : 0.8
Tolerance mm +- : 0.4
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1250
Supply pump
pressure bar : 7.3
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Supply pump
pressure bar : 3.9
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 1250
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s + : 41.6

Check tolerance
ccm/10s + : 41.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s + : 22.2

Check tolerance
ccm/10s + : 22.2
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1350
Del. quantity
cm³/1000 strokes : 44.0
Tolerance
cm³/1000 str. + : 2.0
Check tolerance
cm³/1000s. + : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1400
Del. quantity
cm³/1000 strokes : 12.0
Check tolerance
cm³/1000s. + : 8.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1450
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000s. + : 1.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : 65.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000s. + : 3.5

Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Del. quantity
 cm³/1000 strokes : 62.5
 Tolerance
 cm³/1000 str. ± : 1.5
 Check tolerance
 cm³/1000S. ± : 3.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 750
 Del. quantity
 cm³/1000 strokes : 69.0
 Tolerance
 cm³/1000 str. ± : 0.5
 Check tolerance
 cm³/1000S. ± : 3.0
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF
 CONTROL LEVER, IDLE STOP

Rated speed rpm : 350
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. ± : 1.5
 Check tolerance
 cm³/1000S. ± : 1.5
 Spread
 cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 350
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. ± : 1.5
 Spread
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. ± : 1.5
 Spread
 cm³/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 500
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. ± : 1.5

Check tolerance
 cm³/1000S. ± : 1.5
 Shutoff solenoid
 Volt : 12

START TRANSITION

Rated speed rpm : 250
 Del. quantity
 cm³/1000 strokes : 57.0
 Tolerance
 cm³/1000 str. ± : 10.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 150
 Del. quantity
 cm³/1000 strokes : 115.0
 Tolerance
 cm³/1000 str. ± : 25.0
 Shutoff solenoid
 Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : -
 Dimension KF mm : 5,5
 Tolerance mm ± : ±0,2
 Dimension MS mm : 1,6
 Tolerance mm ± : ±0,2

CONTROL LEVER POSITION
 SET

Control lever
 position YA mm : 37,9..39,9
 Control lever
 position YB mm : 44,1..49,1

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.04.95
Test oil : ISO 4113
Part no. : 0 460 414 015
Pump designation : VE4/11F1250L164-1

Customer-spec. information
Customer : IVECO-FIAT
Motor : 8045.06.200
Power KW : 53.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holder
assembly : 1 688 901 020

Opening pressure
bar : 172
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Prestroke

B02

(as of UT) mm : 0,2
Tolerance mm ± : ±0,02
Check
tolerance mm ± : ±0,04

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 800
Setting mm : 2.1
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 800
Supply pump
pressure bar : 4.0
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 67.5
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 4.0
Shutoff solenoid
Volt : 12

IDLE SETTING

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 25.0
Tolerance
cm³/1000 str. ± : 2.0
Shutoff solenoid
Volt : 12
Spread
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 3.5

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1365

Del. quantity
cm³/1000 strokes : 32.0
Tolerance
cm³/1000 str. + : 3.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 115.0
Tolerance
cm³/1000 str. + : 25.0
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1100

SV travel mm : 5.2
Tolerance mm + : 0.4
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 600

SV travel mm : 0.5
Tolerance mm + : 0.3
Check
tolerance mm + : 0.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250

SV travel mm : 5.7
Tolerance mm + : 0.4
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1250
Supply pump
pressure bar : 6.3
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Supply pump
pressure bar : 3.2
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 1250
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s + : 41.6

Check tolerance
ccm/10s + : 41.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s + : 22.2

Check tolerance
ccm/10s + : 22.2
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1365
Del. quantity
cm³/1000 strokes : 32.0
Tolerance
cm³/1000 str. + : 3.0
Check tolerance
cm³/1000s. + : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1395
Del. quantity
cm³/1000 strokes : 12.0
Check tolerance
cm³/1000s. + : 8.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1430
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000s. + : 1.5

Shutoff solenoid
Volt : 12

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : 61.0
Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. +- : 3.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 62.0
Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. +- : 3.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 800
Del. quantity
cm3/1000 strokes : 67.5
Tolerance
cm3/1000 str. +- : 0.5
Check tolerance
cm3/1000S. +- : 3.0
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 350
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. +- : 1.5
Spread
cm3/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 350
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. +- : 1.5

IDLE DELIVERY

Rated speed rpm : 480
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. +- : 1.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 425
Del. quantity
cm3/1000 strokes : 5.0
Tolerance
cm3/1000 str. +- : 3.0
Check tolerance
cm3/1000S. +- : 4.0
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 250
Del. quantity
cm3/1000 strokes : 50.0
Tolerance
cm3/1000 str. +- : 10.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 150
Del. quantity
cm3/1000 strokes : 115.0
Tolerance
cm3/1000 str. +- : 25.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : -
Dimension KF mm : 5,2
Tolerance mm +- : +-0,2
Dimension MS mm : 1,6
Tolerance mm +- : +-0,2

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 37,9..39,9

Control lever
position YB mm : 43,6..48,6

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.04.95
Test oil : ISO 4113

Part no. : 0 460 414 024
Pump designation : VE4/11F1250L164-2

Customer-spec. information
Customer : IVECO-FIAT
Motor : 8045.06.220
Power KW : 48.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 020

Opening pressure
bar : 172
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Prestroke

B06

(as of UT) mm : 0,2
Tolerance mm ± : ±0,02
Check
tolerance mm ± : ±0,04

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 800

Setting mm : 3.2
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 800
Supply pump
pressure bar : 4.4
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 750
Del. quantity
cm3/1000 strokes : 62.5
Tolerance
cm3/1000 str. ± : 0.5
Spread
cm3/1000 strokes : 4.0
Shutoff solenoid
Volt : 12

IDLE SETTING

Rated speed rpm : 350
Del. quantity
cm3/1000 strokes : 23.0
Tolerance
cm3/1000 str. ± : 2.0
Shutoff solenoid
Volt : 12
Spread
cm3/1000 strokes : 3.5
Check tolerance
cm3/1000S. : 3.5

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1350

Del. quantity
cm³/1000 strokes : 45.0
Tolerance
cm³/1000 str. +- : 2.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 115.0
Tolerance
cm³/1000 str. +- : 25.0
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1000

SV travel mm : 5.2
Tolerance mm +- : 0.4
Check
tolerance mm +- : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 600

SV travel mm : 1.6
Tolerance mm +- : 0.4
Check
tolerance mm +- : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250

SV travel mm : 5.8
Tolerance mm +- : 0.4
Check
tolerance mm +- : 0.7
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1250
Supply pump
pressure bar : 6.4
Tolerance bar +- : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Supply pump
pressure bar : 3.5
Tolerance bar +- : 3.5
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 1250
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s +- : 41.6

Check tolerance
ccm/10s +- : 41.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Overflow quantity
ccm/10s : 62.5
Tolerance
ccm/10s +- : 20.8

Check tolerance
ccm/10s +- : 20.8
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1350
Del. quantity
cm³/1000 strokes : 45.0
Tolerance
cm³/1000 str. +- : 2.0
Check tolerance
cm³/1000s. +- : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1400
Del. quantity
cm³/1000 strokes : 13.0
Check tolerance
cm³/1000s. +- : 8.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1450
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000s. +- : 1.5

Shutoff solenoid
Volt : 12

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : 53.5
Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. +- : 3.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 59.0
Tolerance
cm3/1000 str. +- : 2.0
Check tolerance
cm3/1000S. +- : 3.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Del. quantity
cm3/1000 strokes : 62.5
Tolerance
cm3/1000 str. +- : 0.5
Check tolerance
cm3/1000S. +- : 3.0
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 350
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. +- : 1.5
Spread
cm3/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 350
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. +- : 1.5

IDLE DELIVERY

Rated speed rpm : 450
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. +- : 1.5
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 250
Del. quantity
cm3/1000 strokes : 40.0
Tolerance
cm3/1000 str. +- : 10.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 150
Del. quantity
cm3/1000 strokes : 125.0
Tolerance
cm3/1000 str. +- : 25.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : -
Dimension KF mm : 5,2
Tolerance mm +- : +-0,2
Dimension MS mm : 1,6
Tolerance mm +- : +-0,2

CONTROL LEVER POSITION SET

Control lever
position YA mm : 37,9..39,9
Control lever
position YB mm : 44,2..49,6

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 12.12.95
Test oil : ISO 4113

Part no. : 0 460 406 049
Pump designation : VE6/10F2400L216

Customer-spec. information
Customer : VW
Motor : 087T-Vol LLK
Power KW : 90.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 000

Opening pressure
bar : 147
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1500
Aneroid pressure
hPa : 800
Setting mm : 1.7
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1500
Aneroid pressure
hPa : 800
Supply pump
pressure bar : 6.0
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1500
Aneroid pressure
hPa : 800
Del. quantity
cm³/1000 strokes : 46.0
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 26.0
Tolerance
cm³/1000 str. ± : 0.5
Shutoff solenoid
Volt : 12
Check tolerance
cm³/1000S. : 3.0

IDLE SETTING

Rated speed rpm : 415
Del. quantity
cm³/1000 strokes : 8.0
Tolerance
cm³/1000 str. ± : 2.0
Shutoff solenoid
Volt : 12

Spread
cm³/1000 strokes : 2.0
Check tolerance
cm³/1000s. : 3.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2675
Pressure hPa : 800
Del. quantity
cm³/1000 strokes : 16.0
Tolerance
cm³/1000 str. + : 2.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 65.0
Tolerance
cm³/1000 str. + : 25.0
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2400
Aneroid pressure
hPa : 800
SV travel mm : 4.2
Tolerance mm + : 0.4
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 1200
Aneroid pressure
hPa : 800

SV travel mm : 0.8
Tolerance mm + : 0.4
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 2000

Aneroid pressure
hPa : 800
SV travel mm : 3.1
Tolerance mm + : 0.4
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2400
Aneroid pressure
hPa : 800
Supply pump
pressure bar : 8.2
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Aneroid pressure
hPa : 800
Supply pump
pressure bar : 3.6
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 600
Overflow quantity
ccm/10s : 62.5
Tolerance
ccm/10s + : 20.8

Check tolerance
ccm/10s + : 34.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 2400
Aneroid pressure
hPa : 800
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s + : 41.6

Check tolerance
ccm/10s + : 55.5
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2675

Aneroid pressure
hPa : 800
Del. quantity
cm3/1000 strokes : 16.0
Tolerance
cm3/1000 str. +- : 2.0
Check tolerance
cm3/1000S. +- : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2850
Aneroid pressure
hPa : 800
Del. quantity
cm3/1000 strokes : 3.0
Check tolerance
cm3/1000S. +- : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2575
Aneroid pressure
hPa : 800
Del. quantity
cm3/1000 strokes : 30.0
Tolerance
cm3/1000 str. +- : 5.0
Check tolerance
cm3/1000S. +- : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 800
Aneroid pressure
hPa : 300
Del. quantity
cm3/1000 strokes : 34.5
Tolerance
cm3/1000 str. +- : 0.5
Check tolerance
cm3/1000S. +- : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2400
Aneroid pressure
hPa : 800
Del. quantity
cm3/1000 strokes : 38.5
Tolerance
cm3/1000 str. +- : 1.0
Check tolerance
cm3/1000S. +- : 2.2
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Aneroid pressure
hPa : 800

Del. quantity
cm3/1000 strokes : 40.0
Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. +- : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1500
Aneroid pressure
hPa : 800
Del. quantity
cm3/1000 strokes : 46.0
Tolerance
cm3/1000 str. +- : 0.5
Check tolerance
cm3/1000S. +- : 2.2
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 415
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. +- : 1.5
Spread
cm3/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 415
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. +- : 1.5
Spread
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. +- : 1.5
Spread
cm3/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 750
Del. quantity
cm3/1000 strokes : 2.0
Tolerance
cm3/1000 str. +- : 2.0
Check tolerance
cm3/1000S. +- : 2.0

Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 380
Del. quantity
cm³/1000 strokes : 20.0
Tolerance
cm³/1000 str. \pm : 10.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 230
Del. quantity
cm³/1000 strokes : 65.0
Tolerance
cm³/1000 str. \pm : 25.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,3
Tolerance mm \pm : $\pm 0,1$
Dimension KF mm : 6,4
Tolerance mm \pm : $\pm 0,2$
Dimension MS mm : 1,8
Tolerance mm \pm : $\pm 0,2$
TLA travel mm : 12,7

CONTROL LEVER POSITION SET

Control lever
position YA mm : 8,5...10,5

Control lever
position YB mm : 71,0..89,6

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.06.95
Test oil : ISO 4113
Part no. : 0 460 485 023
Pump designation : VE5/8F2100L457-2

Customer-spec. information
Customer : VW
Motor : 2,4L WK-SD T4

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C +- : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar +- : 0.05

Test nozzle holde
assembly : 1 688 901 000

Opening pressure
bar : 147
Tolerance bar +- : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1500
Setting mm : 4.3
Tolerance mm +- : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1500
Supply pump
pressure bar : 7.4
Tolerance bar +- : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : 35.5
Tolerance
cm3/1000 str. +- : 0.5
Spread
cm3/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 540
Del. quantity
cm3/1000 strokes : 7.0
Tolerance
cm3/1000 str. +- : 0.5
Shutoff solenoid
Volt : 12

IDLE DELIVERY

Rated speed rpm : 415
Del. quantity
cm3/1000 strokes : 8.0
Tolerance
cm3/1000 str. +- : 1.0
Spread
cm3/1000 strokes : 2.0
Shut_ff solenoid
Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2400
Del. quantity
cm3/1000 strokes : 12.0

Tolerance
cm³/1000 str. + : 2.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 str. + : 25.0
Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -7.0
Tolerance
cm³/1000 str. + : 1.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 str. + : 0.1
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -1.2
Tolerance
cm³/1000 str. + : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1790
SV travel mm : 6.3
Tolerance mm + : 0.4

Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 1100

SV travel mm : 1.6
Tolerance mm + : 0.4
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1790
Supply pump
pressure bar : 8.1
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 1100
Supply pump
pressure bar : 6.2
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2100
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s + : 41.6
Check tolerance
ccm/10s + : 55.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s + : 22.2

Check tolerance
ccm/10s + : 34.7
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2400
Del. quantity
cm³/1000 strokes : 12.0

Tolerance
 cm3/1000 str. +- : 2.0
 Check tolerance
 cm3/1000S. +- : 4.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2300
 Del. quantity
 cm3/1000 strokes : 22.0
 Tolerance
 cm3/1000 str. +- : 5.0
 Check tolerance
 cm3/1000S. +- : 6.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2600
 Del. quantity
 cm3/1000 strokes : 3.0
 Tolerance
 cm3/1000 str. +- : 3.0
 Check tolerance
 cm3/1000S. +- : 3.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2100
 Del. quantity
 cm3/1000 strokes : 29.5
 Tolerance
 cm3/1000 str. +- : 1.0
 Check tolerance
 cm3/1000S. +- : 2.2
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1850
 Del. quantity
 cm3/1000 strokes : 32.5
 Tolerance
 cm3/1000 str. +- : 3.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 600
 Del. quantity
 cm3/1000 strokes : 33.3
 Tolerance
 cm3/1000 str. +- : 1.5
 Check tolerance
 cm3/1000S. +- : 3.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1250
 Del. quantity
 cm3/1000 strokes : 35.5
 Tolerance
 cm3/1000 str. +- : 0.5

Check tolerance
 cm3/1000S. +- : 2.2
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 415
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. +- : 1.5
 Check tolerance
 cm3/1000S. +- : 1.5
 Spread
 cm3/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 415
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. +- : 1.5
 Spread
 cm3/1000 strokes : 5.0
 Check tolerance
 cm3/1000S. +- : 1.5
 Spread
 cm3/1000 strokes : 5.0

RESIDUAL QUANTITY

Rated speed rpm : 490
 Del. quantity
 cm3/1000 strokes : 7.8
 Tolerance
 cm3/1000 str. +- : 1.0
 Check tolerance
 cm3/1000S. +- : 2.5
 Shutoff solenoid
 Volt : 12

CHECKING LOAD-DEPENDENT START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1500
 Del. quantity
 cm3/1000 strokes : -10.5

Tolerance
cm3/1000 str. +- : 3.0
Check tolerance
cm3/1000S. +- : 4.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm3/1000 strokes : -1.2
Tolerance
cm3/1000 str. +- : 0.1
Check tolerance
cm3/1000S. +- : 0.1
Shutoff solenoid
Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. +- : 1.5
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1500
Supply pump
pressure bar : -1.0
Tolerance bar +- : 0.2
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Tolerance mm +- : 0.2
Check
tolerance mm +- : 0.6
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 380
Del. quantity
cm3/1000 strokes : 27.0
Tolerance
cm3/1000 str. +- : 10.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 180
Del. quantity
cm3/1000 strokes : 60.0
Tolerance
cm3/1000 str. +- : 25.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,3
Tolerance mm +- : +-0,1
Dimension KF mm : 5,8
Tolerance mm +- : +-0,2
Dimension MS mm : 1,4
Tolerance mm +- : +-0,2

CONTROL LEVER POSITION SET

Control lever
position YA mm : 32,8..34,8

Control lever
position YB mm : 60,5..71,5

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.04.95
Test oil : ISO 4113

Part no. : 0 460 485 030
Pump designation : VE5/8F2100L457-5

Customer-spec. information

Customer : VW
Motor : 2,4L WK-SD T4
Power KW : 57.0

TEST BENCH REQUIREMENTS

Calibrating-oil return

temperature °C : 45
Tolerance °C +- : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar +- : 0.05

Test nozzle holde
assembly : 1 688 901 000

Opening pressure
bar : 147
Tolerance bar +- : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1500
Setting mm : 4.3
Tolerance mm +- : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1500
Supply pump
pressure bar : 7.4
Tolerance bar +- : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : 35.5
Tolerance
cm3/1000 str. +- : 0.5
Spread
cm3/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 540
Del. quantity
cm3/1000 strokes : 7.0
Tolerance
cm3/1000 str. +- : 0.5
Shutoff solenoid
Volt : 12

IDLE DELIVERY

Rated speed rpm : 415
Del. quantity
cm3/1000 strokes : 8.0
Tolerance
cm3/1000 str. +- : 1.0
Spread
cm3/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2400
Del. quantity
cm3/1000 strokes : 12.0

Tolerance
cm³/1000 str. +- : 2.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 str. +- : 25.0
Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -7.0
Tolerance
cm³/1000 str. +- : 1.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 str. +- : 0.1
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -1.2
Tolerance
cm³/1000 str. +- : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1790

SV travel mm : 6.3
Tolerance mm +- : 0.4

Check
tolerance mm +- : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 1100

SV travel mm : 1.6
Tolerance mm +- : 0.4
Check
tolerance mm +- : 0.7
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1790
Supply pump
pressure bar : 8.1
Tolerance bar +- : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 1500

Rated speed rpm : 1250

Rated speed rpm : 1100
Supply pump
pressure bar : 6.2
Tolerance bar +- : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2100
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s +- : 41.6

Check tolerance
ccm/10s +- : 55.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s +- : 22.2

Check tolerance
ccm/10s +- : 34.7
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2400
 Del. quantity
 cm3/1000 strokes : 12.0
 Tolerance
 cm3/1000 str. +- : 2.0
 Check tolerance
 cm3/1000S. +- : 4.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2300
 Del. quantity
 cm3/1000 strokes : 22.0
 Tolerance
 cm3/1000 str. +- : 5.0
 Check tolerance
 cm3/1000S. +- : 6.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2600
 Del. quantity
 cm3/1000 strokes : 3.0
 Tolerance
 cm3/1000 str. +- : 3.0
 Check tolerance
 cm3/1000S. +- : 3.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2100
 Del. quantity
 cm3/1000 strokes : 29.5
 Tolerance
 cm3/1000 str. +- : 1.0
 Check tolerance
 cm3/1000S. +- : 2.2
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1850
 Del. quantity
 cm3/1000 strokes : 32.5
 Tolerance
 cm3/1000 str. +- : 3.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 600
 Del. quantity
 cm3/1000 strokes : 33.3
 Tolerance
 cm3/1000 str. +- : 1.5
 Check tolerance
 cm3/1000S. +- : 3.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1250

Del. quantity
 cm3/1000 strokes : 35.5
 Tolerance
 cm3/1000 str. +- : 0.5
 Check tolerance
 cm3/1000S. +- : 2.2
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 415
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. +- : 1.5
 Check tolerance
 cm3/1000S. +- : 1.5
 Spread
 cm3/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 415
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. +- : 1.5
 Spread
 cm3/1000 strokes : 5.0
 Check tolerance
 cm3/1000S. +- : 1.5
 Spread
 cm3/1000 strokes : 5.0

RESIDUAL QUANTITY

Rated speed rpm : 490
 Del. quantity
 cm3/1000 strokes : 7.8
 Tolerance
 cm3/1000 str. +- : 1.0
 Check tolerance
 cm3/1000S. +- : 2.5
 Shutoff solenoid
 Volt : 12

CHECKING LOAD-DEPENDENT START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -10.5
Tolerance
cm³/1000 str. ± : 3.0
Check tolerance
cm³/1000S. ± : 4.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -1.2
Tolerance
cm³/1000 str. ± : 0.1
Check tolerance
cm³/1000S. ± : 0.1
Shutoff solenoid
Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1500
Supply pump
pressure bar : -1.0
Tolerance bar ± : 0.2
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Tolerance mm ± : 0.2
Check
tolerance mm ± : 0.6
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 380
Del. quantity
cm³/1000 strokes : 27.0
Tolerance
cm³/1000 str. ± : 10.0

Shutoff solenoid
Volt : 12

Rated speed rpm : 180
Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 str. ± : 25.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,3
Tolerance mm ± : ±0,1
Dimension KF mm : 5,8
Tolerance mm ± : ±0,2
Dimension MS mm : 1,4
Tolerance mm ± : ±0,2

CONTROL LEVER POSITION SET

Control lever
position YA mm : 32,8..34,8

Control lever
position YB mm : 60,5..71,5

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 05.03.96
Test oil : ISO 4113

Part no. : 0 460 403 015
Pump designation : VE3/10F1500L481

Customer-spec. information

Customer : VM
Motor : HR 394 HT
Power KW : 51.0

TEST BENCH REQUIREMENTS

Calibrating-oil return

temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 022

Opening pressure
bar : 150
Tolerance bar ± : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1200
Aneroid pressure
hPa : 1000
Setting mm : 2.6
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1200
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 5.9
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1200
Aneroid pressure
hPa : 1000
Del. quantity
cm3/1000 strokes : 67.5
Tolerance
cm3/1000 str. ± : 0.5
Spread
cm3/1000 strokes : 3.5
Check tolerance
cm3/1000S. : 4.0
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 600
Del. quantity
cm3/1000 strokes : 59.5
Tolerance
cm3/1000 str. ± : 0.5
Shutoff solenoid
Volt : 12
Check tolerance
cm3/1000S. : 4.0

IDLE SETTING

Rated speed rpm : 400
Del. quantity
cm3/1000 strokes : 12.5
Tolerance
cm3/1000 str. ± : 2.0
Shutoff solenoid
Volt : 12

Spread
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000s. : 3.5

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1570
Pressure hPa : 1000
Del. quantity
cm³/1000 strokes : 50.0
Tolerance
cm³/1000 str. + : 3.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 85.0
Tolerance
cm³/1000 str. + : 25.0
Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1200
Del. quantity
cm³/1000 strokes : -7.0
Tolerance
cm³/1000 str. + : 1.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1200
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 str. + : 0.1
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1200

Del. quantity
cm³/1000 strokes : -0.9
Tolerance
cm³/1000 str. + : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1500
Aneroid pressure
hPa : 1000
SV travel mm : 3.9
Tolerance mm + : 0.4
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000
SV travel mm : 1.7
Tolerance mm + : 0.4
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1500
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 7.2
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 4.1
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 1500
Aneroid pressure
hPa : 1000

Overflow quantity
 ccm/10s : 97.2
 Tolerance
 ccm/10s ± : 41.6

 Check tolerance
 ccm/10s ± : 41.6
 Shutoff solenoid
 Volt : 12

 Rated speed rpm : 750
 Aneroid pressure
 hPa : 1000
 Overflow quantity
 ccm/10s : 62.5
 Tolerance
 ccm/10s ± : 20.8

 Check tolerance
 ccm/10s ± : 20.8
 Shutoff solenoid
 Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1570
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 50.0
 Tolerance
 cm³/1000 str. ± : 3.0
 Check tolerance
 cm³/1000S. ± : 6.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1670
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 1.5
 Check tolerance
 cm³/1000S. ± : 1.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 750
 Aneroid pressure
 hPa : 350

LDA/
 HBA stroke mm : 5.0
 Del. quantity
 cm³/1000 strokes : 62.0
 Tolerance
 cm³/1000 str. ± : 0.5
 Check tolerance
 cm³/1000S. ± : 3.0

Shutoff solenoid
 Volt : 12

 Rated speed rpm : 1500
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 65.5
 Tolerance
 cm³/1000 str. ± : 1.5
 Check tolerance
 cm³/1000S. ± : 3.0
 Shutoff solenoid
 Volt : 12

 Rated speed rpm : 750
 Del. quantity
 cm³/1000 strokes : 57.5
 Tolerance
 cm³/1000 str. ± : 2.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 750
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 68.0
 Tolerance
 cm³/1000 str. ± : 1.5
 Check tolerance
 cm³/1000S. ± : 3.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1200
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 67.5
 Tolerance
 cm³/1000 str. ± : 0.5
 Check tolerance
 cm³/1000S. ± : 3.0
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 400
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. ± : 1.5
 Check tolerance
 cm³/1000S. ± : 1.5

Spread
cm3/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 400
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Spread
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. + : 1.5
Spread
cm3/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 440
Del. quantity
cm3/1000 strokes : 5.0
Tolerance
cm3/1000 str. + : 3.0
Check tolerance
cm3/1000S. + : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 550
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000S. + : 1.5
Shutoff solenoid
Volt : 12

CHECKING LOAD-DEPENDENT START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1200
Del. quantity
cm3/1000 strokes : -16.0
Tolerance
cm3/1000 str. + : 4.0
Check tolerance
cm3/1000S. + : 4.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1200
Del. quantity
cm3/1000 strokes : -0.9
Tolerance
cm3/1000 str. + : 0.1
Check tolerance
cm3/1000S. + : 0.1
Shutoff solenoid
Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1200
Del. quantity
cm3/1000 strokes : 5.0
Tolerance
cm3/1000 str. + : 2.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1200
SV travel mm : -1.7
Tolerance mm + : 0.4
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 450
Del. quantity
cm3/1000 strokes : 60.0
Tolerance
cm3/1000 str. + : 10.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 250
Del. quantity
cm3/1000 strokes : 85.0
Tolerance
cm3/1000 str. + : 25.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/
HBA stroke mm : 5.0
Dimension K mm : 3.3
Tolerance mm + : +0,1
Dimension KF mm : 6,0,
Tolerance mm + : +0,2
Dimension MS mm : 0.8

Tolerance mm \pm : $\pm 0,2$

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 06.12.95
Test oil : ISO 4113
Part no. : 0 460 404 075
Pump designation : VE4/10F2100L503

Customer-spec. information

Customer : VM
Motor : HR 425 SLIRF
Power KW : 90.0

TEST BENCH REQUIREMENTS

Overflow restriction mm : 0.75

Inlet press. bar : 0.35
Tolerance bar + : 0.05

Test nozzle holde assembly : 1 688 901 022

Opening pressure bar : 130
Tolerance bar + : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 500
Aneroid pressure hPa : 1000

Setting mm : 7.7
Tolerance mm + : 0.2
Shutoff solenoid Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 500
Aneroid pressure hPa : 1000
Supply pump pressure bar : 5.9
Tolerance bar + : 0.3
Shutoff solenoid Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1500
Aneroid pressure hPa : 1000
Del. quantity cm³/1000 strokes : 66.0
Tolerance cm³/1000 str. + : 0.5
Spread cm³/1000 strokes : 3.0
Check tolerance cm³/1000S. : 3.0
Shutoff solenoid Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 700
Del. quantity cm³/1000 strokes : 42.0
Tolerance cm³/1000 str. + : 0.5
Shutoff solenoid Volt : 12
Check tolerance cm³/1000S. : 3.0

IDLE SETTING

Rated speed rpm : 450
Del. quantity cm³/1000 strokes : 12.0
Tolerance cm³/1000 str. + : 2.0
Shutoff solenoid Volt : 12
Spread cm³/1000 strokes : 3.0
Check tolerance cm³/1000S. : 3.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2300
 Pressure hPa : 1000
 Del. quantity
 cm3/1000 strokes : 38.0
 Tolerance
 cm3/1000 str. + : 3.0
 Shutoff solenoid
 Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm3/1000 strokes : 65.0
 Tolerance
 cm3/1000 str. + : 17.0
 Shutoff solenoid
 Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2100
 Aneroid pressure
 hPa : 1000

SV travel mm : 9.8
 Tolerance mm + : 0.5
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 150
 Aneroid pressure
 hPa : 1000

SV travel mm : 5.5
 Tolerance mm + : 1.8
 Check
 tolerance mm + : 1.8
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2100
 Aneroid pressure
 hPa : 1000

SV travel mm : 0.5
 Tolerance mm + : 0.5

Check
 tolerance mm + : 0.5
 Shutoff solenoid
 Volt : 12

Timing device
 solenoid Volt : 100

Rated speed rpm : 1000
 Aneroid pressure
 hPa : 1000

SV travel mm : 9.0
 Tolerance mm + : 0.5

Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1000
 Aneroid pressure
 hPa : 1000

SV travel mm : 0.3
 Tolerance mm + : 0.3

Check
 tolerance mm + : 0.3
 Shutoff solenoid
 Volt : 12

Timing device
 solenoid Volt : 100

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2100
 Aneroid pressure
 hPa : 1000

Supply pump
 pressure bar : 8.0
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 150
 Aneroid pressure
 hPa : 1000

Supply pump
 pressure bar : 4.8
 Tolerance bar + : 0.8
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1000
 Aneroid pressure
 hPa : 1000

Supply pump
 pressure bar : 6.5
 Tolerance bar + : 0.3

Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 700
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 83.3
Tolerance
ccm/10s + : 55.5

Check tolerance
ccm/10s + : 55.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 2100
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 111.1
Tolerance
ccm/10s + : 55.5

Check tolerance
ccm/10s + : 55.5
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2300
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 38.0
Tolerance
cm³/1000 str. + : 3.0
Check tolerance
cm³/1000s. + : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2460
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 7.5
Check tolerance
cm³/1000s. + : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 700
Aneroid pressure
hPa : 400
Del. quantity
cm³/1000 strokes : 54.0

Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000s. + : 2.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 2100
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 63.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000s. + : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 700
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 69.0
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000s. + : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1500
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 66.0
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000s. + : 2.0
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000s. + : 1.5

IDLE DELIVERY

Rated speed rpm : 800

Del. quantity
cm³/1000 strokes : 4.0
Tolerance
cm³/1000 str. + : 2.5
Check tolerance
cm³/1000S. + : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 6.0
Tolerance
cm³/1000 str. + : 2.5
Check tolerance
cm³/1000S. + : 5.0
Shutoff solenoid
Volt : 12

EXHAUST-GAS RECIRCULATION

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 50.0
Tolerance
cm³/1000 str. + : 1.0
Check tolerance
cm³/1000S. + : 2.5
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 40.0
Tolerance
cm³/1000 str. + : 10.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 65.0
Tolerance
cm³/1000 str. + : 17.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,7
Tolerance mm + : +0,1
Dimension KF mm : 5,2
Tolerance mm + : +0,2
KSB travel mm : 8,5

POTENTIOMETER SET

1. measurement
voltage Volt : 5,0
1. measurement
voltage Volt : 2,31

MICROSWITCH SET

mm : ARF 12,0

CONTROL LEVER POSITION SET

Control lever
position YA mm : 43.2..45,2

Control lever
position YB mm : 23,5..30,5

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.04.95
Test oil : ISO 4113

Part no. : 0 460 404 083
Pump designation : VE4/10F2100L503-1

Customer-spec. information

Customer : VM
Motor : HR 425 SLIRF
Power KW : 85.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.75

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 022

Opening pressure
bar : 130
Tolerance bar ± : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x Length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 500
Aneroid pressure
hPa : 1000
Setting mm : 7.7
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 500
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 5.9
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1500
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 66.0
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000s. : 3.0
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 42.0
Tolerance
cm³/1000 str. ± : 0.5
Shutoff solenoid
Volt : 12
Check tolerance
cm³/1000s. : 3.0

IDLE SETTING

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 str. ± : 2.0
Shutoff solenoid
Volt : 12

Spread
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000s. : 3.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2300
Pressure hPa : 1000
Del. quantity
cm³/1000 strokes : 38.0
Tolerance
cm³/1000 str. + : 3.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 65.0
Tolerance
cm³/1000 str. + : 17.0
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2100
Aneroid pressure
hPa : 1000

SV travel mm : 9.8
Tolerance mm + : 0.5
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 150
Aneroid pressure
hPa : 1000

SV travel mm : 5.5
Tolerance mm + : 1.8
Check
tolerance mm + : 1.8
Shutoff solenoid
Volt : 12

Rated speed rpm : 2100

Aneroid pressure
hPa : 1000

SV travel mm : 0.5
Tolerance mm + : 0.5
Check
tolerance mm + : 0.5
Shutoff solenoid
Volt : 12

Timing device
solenoid Volt : 100

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000

SV travel mm : 9.0
Tolerance mm + : 0.5
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000

SV travel mm : 0.3
Tolerance mm + : 0.3
Check
tolerance mm + : 0.3
Shutoff solenoid
Volt : 12

Timing device
solenoid Volt : 100

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2100
Aneroid pressure
hPa : 1000

Supply pump
pressure bar : 8.0
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 150
Aneroid pressure
hPa : 1000

Supply pump
pressure bar : 4.8
Tolerance bar + : 0.8
Shutoff solenoid
Volt : 12

Rated speed rpm : 1000

Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 6.5
Tolerance bar +- : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2100
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 111.1
Tolerance
ccm/10s +- : 55.5

Check tolerance
ccm/10s +- : 55.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 700
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 83.3
Tolerance
ccm/10s +- : 55.5

Check tolerance
ccm/10s +- : 55.5
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2300
Aneroid pressure
hPa : 1000
Del. quantity
cm3/1000 strokes : 38.0
Tolerance
cm3/1000 str. +- : 3.0
Check tolerance
cm3/1000S. +- : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2460
Aneroid pressure
hPa : 1000
Del. quantity
cm3/1000 strokes : 7.5
Check tolerance
cm3/1000S. +- : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 700
Aneroid pressure
hPa : 400

LDA/
HBA stroke mm : 6.7
Del. quantity
cm3/1000 strokes : 54.0
Tolerance
cm3/1000 str. +- : 0.5
Check tolerance
cm3/1000S. +- : 2.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 2100
Aneroid pressure
hPa : 1000
Del. quantity
cm3/1000 strokes : 63.5
Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. +- : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 700
Aneroid pressure
hPa : 1000
Del. quantity
cm3/1000 strokes : 69.0
Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. +- : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1500
Aneroid pressure
hPa : 1000
Del. quantity
cm3/1000 strokes : 66.0
Tolerance
cm3/1000 str. +- : 0.5
Check tolerance
cm3/1000S. +- : 2.0
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 450
Del. quantity
cm3/1000 strokes : 1.5

Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. +- : 1.5
Spread
cm3/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 450
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. +- : 1.5
Spread
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. +- : 1.5
Spread
cm3/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 800
Del. quantity
cm3/1000 strokes : 4.0
Tolerance
cm3/1000 str. +- : 2.5
Check tolerance
cm3/1000S. +- : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 6.0
Tolerance
cm3/1000 str. +- : 2.5
Check tolerance
cm3/1000S. +- : 5.0
Shutoff solenoid
Volt : 12

EXHAUST-GAS RECIRCULATION

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000
Del. quantity
cm3/1000 strokes : 50.0
Tolerance
cm3/1000 str. +- : 1.0
Check tolerance
cm3/1000S. +- : 2.5

Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 550
Del. quantity
cm3/1000 strokes : 40.0
Tolerance
cm3/1000 str. +- : 10.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 400
Del. quantity
cm3/1000 strokes : 65.0
Tolerance
cm3/1000 str. +- : 17.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/
HBA stroke mm : 6.7
Dimension K mm : 3,3
Tolerance mm +- : +-0,1
Dimension KF mm : 5,4
Tolerance mm +- : +-0,2
Dimension MS mm : 0,8
Tolerance mm +- : +-0,2

POTENTIOMETER SET

1. measurement
voltage Volt : 5,0
1. measurement
voltage Volt : 2,31

MICROSWITCH SET

: ARF 12,0

CONTROL LEVER POSITION SET

Control lever
position YA mm : 43,2..45,2
Control lever
position YB mm : 23,5..30,5

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 28.06.93
Test oil : ISO 4113
Part no. : 0 460 414 101
Pump designation : VE4/11F1900L519

Customer-spec. information
Customer : PENTA
Motor : TAMD 31
Power KW : 96.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 55
Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 110

Opening pressure
bar : 250
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Prestroke

C07

(as of UT) mm : 0,3
Tolerance mm ± : ±0,02
Check
tolerance mm ± : ±0,04

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1500
Aneroid pressure
hPa : 1000

Setting mm : 2.0
Tolerance mm ± : 0.2

SUPPLY PUMP PRESSURE

Rated speed rpm : 1500
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 6.7
Tolerance bar ± : 0.3

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1500
Aneroid pressure
hPa : 1000
Del. quantity
cm3/1000 strokes : 57.0
Tolerance
cm3/1000 str. ± : 0.5
Spread
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 5.0

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 650
Del. quantity
cm3/1000 strokes : 35.0
Tolerance
cm3/1000 str. ± : 0.5
Check tolerance
cm3/1000S. : 5.0

IDLE SETTING

Rated speed rpm : 300
Del. quantity
cm3/1000 strokes : 13.0
Tolerance
cm3/1000 str. ± : 2.0
Spread
cm3/1000 strokes : 6.0

Check tolerance
cm³/1000s. : 6.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2150
Pressure hPa : 1000
Del. quantity
cm³/1000 strokes : 22.0
Tolerance
cm³/1000 str. +- : 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 45.0
Tolerance
cm³/1000 str. +- : 25.0

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1900
Aneroid pressure
hPa : 1000
SV travel mm : 4.4
Tolerance mm +- : 0.4
Check
tolerance mm +- : 0.7

Rated speed rpm : 1700
Aneroid pressure
hPa : 1000
SV travel mm : 3.1
Tolerance mm +- : 0.5
Check
tolerance mm +- : 0.7

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1900
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 8.0
Tolerance bar +- : 0.3

Rated speed rpm : 750

Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 4.1
Tolerance bar +- : 0.3

OVERFLOW QUANTITY

Rated speed rpm : 650
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s +- : 22.2

Check tolerance
ccm/10s +- : 22.2

Rated speed rpm : 1900
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s +- : 41.6

Check tolerance
ccm/10s +- : 41.6

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2150
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 22.0
Tolerance
cm³/1000 str. +- : 3.0
Check tolerance
cm³/1000s. +- : 4.0

Rated speed rpm : 2250
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000s. +- : 1.5

Rated speed rpm : 900
Aneroid pressure
hPa : 300

LDA/
HBA stroke mm : 7,5
Del. quantity
cm³/1000 strokes : 47.0
Tolerance
cm³/1000 str. +- : 0.5

Check tolerance
cm³/1000S. + : 3.0

Rated speed rpm : 1900
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 55.0
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 3.0

Rated speed rpm : 1200
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 58.5
Tolerance
cm³/1000 str. + : 2.5

Rated speed rpm : 750
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 58.5
Tolerance
cm³/1000 str. + : 2.5

Rated speed rpm : 1500
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 57.0
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 2.5

MECHANICAL SHUTOFF

Rated speed rpm : 1900
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. + : 1.5
Spread
cm³/1000 strokes : 5.0

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5
Spread
cm³/1000 strokes : 5.0
Shutoff solenoid
Volt : 12

IDLE DELIVERY

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5

Rated speed rpm : 250
Del. quantity
cm³/1000 strokes : 23.0
Tolerance
cm³/1000 str. + : 6.0

START TRANSITION

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 35.0
Tolerance
cm³/1000 str. + : 15.0

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 80.0
Tolerance
cm³/1000 str. + : 20.0

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/
HBA stroke mm : 7,5
Dimension KF mm : 5,4
Tolerance mm + : +0,2
Dimension MS mm : 1,3
Tolerance mm + : +0,2
SVS dimension mm : 7,5

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 37,2..39,2

Control lever
position YB mm : 53,0..61,0

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 14.07.95
Test oil : ISO 4113

Part no. : 0 460 485 031
Pump designation : VE5/8F2100L525-6

Customer-spec. information
Customer : VW
Motor : 2,4L SD
Power KW : 57.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C + : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar + : 0.05

Test nozzle holde
assembly : 1 688 901 000

Opening pressure
bar : 147
Tolerance bar + : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1500

Setting mm : 4.3
Tolerance mm + : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1500
Supply pump
pressure bar : 7.4
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : 35.5
Tolerance
cm3/1000 str. + : 0.5
Spread
cm3/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 540
Del. quantity
cm3/1000 strokes : 7.0
Tolerance
cm3/1000 str. + : 0.5
Shutoff solenoid
Volt : 12

IDLE DELIVERY

Rated speed rpm : 415
Del. quantity
cm3/1000 strokes : 8.0
Tolerance
cm3/1000 str. + : 1.0
Spread
cm3/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

HIGH IDLE SETTING

Rated speed rpm : 465
Del. quantity
cm3/1000 strokes : 8.0

Tolerance
cm³/1000 str. ± : 1.0
Shutoff solenoid
Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2400
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 str. ± : 2.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 55.0
Tolerance
cm³/1000 str. ± : 20.0
Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -7.0
Tolerance
cm³/1000 str. ± : 1.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 str. ± : 0.1
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -1.2
Tolerance
cm³/1000 str. ± : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1790
SV travel mm : 6.3
Tolerance mm ± : 0.4
Check
tolerance mm ± : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 1100

SV travel mm : 1.6
Tolerance mm ± : 0.4
Check
tolerance mm ± : 0.7
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1790
Supply pump
pressure bar : 8.1
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 1100
Supply pump
pressure bar : 6.2
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2100
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s ± : 41.6
Check tolerance
ccm/10s ± : 55.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s ± : 22.2

Check tolerance
ccm/10s + : 34.7
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2400
Del. quantity
cm3/1000 strokes : 12.0
Tolerance
cm3/1000 str. + : 2.0
Check tolerance
cm3/1000s. + : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2300
Del. quantity
cm3/1000 strokes : 22.0
Tolerance
cm3/1000 str. + : 5.0
Check tolerance
cm3/1000s. + : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2600
Del. quantity
cm3/1000 strokes : 3.0
Tolerance
cm3/1000 str. + : 3.0
Check tolerance
cm3/1000s. + : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2100
Del. quantity
cm3/1000 strokes : 29.5
Tolerance
cm3/1000 str. + : 1.0
Check tolerance
cm3/1000s. + : 2.2
Shutoff solenoid
Volt : 12

Rated speed rpm : 1850
Del. quantity
cm3/1000 strokes : 32.5
Tolerance
cm3/1000 str. + : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Del. quantity
cm3/1000 strokes : 33.3

Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000s. + : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : 35.5
Tolerance
cm3/1000 str. + : 0.5
Check tolerance
cm3/1000s. + : 2.2
Shutoff solenoid
Volt : 12

MECHANICAL SHUTOFF

Rated speed rpm : 2100
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000s. + : 1.5
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 415
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000s. + : 1.5
Spread
cm3/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 415
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Spread
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000s. + : 1.5
Spread
cm3/1000 strokes : 5.0

CHECKING LOAD-DEPENDENT
START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -10.5
Tolerance
cm³/1000 str. ± : 3.0
Check tolerance
cm³/1000S. ± : 4.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -1.2
Tolerance
cm³/1000 str. ± : 0.1
Check tolerance
cm³/1000S. ± : 0.1
Shutoff solenoid
Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1500
Supply pump
pressure bar : -1.0
Tolerance bar ± : 0.2
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Tolerance mm ± : 0.2
Check
tolerance mm ± : 0.6
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 380
Del. quantity
cm³/1000 strokes : 27.0
Tolerance
cm³/1000 str. ± : 10.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 180
Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 str. ± : 25.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,3
Tolerance mm ± : ±0,1
Dimension KF mm : 5,8
Tolerance mm ± : ±0,2
Dimension MS mm : 1,4
Tolerance mm ± : ±0,2

POTENTIOMETER
SET

1. measurement
voltage Volt : 5,0
1. measurement
voltage Volt : 0,7

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 32,8..34,8
Control lever
position YB mm : 61,5..68,5

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 06.09.95
Test oil : ISO 4113

Part no. : 0 460 485 034
Pump designation : VE5/8F2100L545-7

Customer-spec. information
Customer : VW
Motor : 2,4l SD
Power KW : 57.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C +- : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar +- : 0.05

Test nozzle holde
assembly : 1 688 901 000

Opening pressure
bar : 147
Tolerance bar +- : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1250

Setting mm : 2.4
Tolerance mm +- : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250
Supply pump
pressure bar : 6.0
Tolerance bar +- : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : 36.5
Tolerance
cm3/1000 str. +- : 0.5
Spread
cm3/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 540
Del. quantity
cm3/1000 strokes : 7.0
Tolerance
cm3/1000 str. +- : 0.5
Shutoff solenoid
Volt : 12

IDLE DELIVERY

Rated speed rpm : 415
Del. quantity
cm3/1000 strokes : 8.0
Tolerance
cm3/1000 str. +- : 1.0
Spread
cm3/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

HIGH IDLE SETTING

Rated speed rpm : 450
Del. quantity
cm3/1000 strokes : 8.0

Tolerance
cm³/1000 str. + : 1.0
Shutoff solenoid
Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2400
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 str. + : 2.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 str. + : 25.0
Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -7.0
Tolerance
cm³/1000 str. + : 1.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 str. + : 0.1
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -0.4
Tolerance
cm³/1000 str. + : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1790
SV travel mm : 5.7
Tolerance mm + : 0.4
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 1000

SV travel mm : 0.7
Tolerance mm + : 0.4
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1790
Supply pump
pressure bar : 7.5
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 1000
Supply pump
pressure bar : 5.3
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2100
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s + : 41.6
Check tolerance
ccm/10s + : 55.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s + : 22.2

Check tolerance
ccm/10s +- : 34.7
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2400
Del. quantity
cm3/1000 strokes : 12.0
Tolerance
cm3/1000 str. +- : 2.0
Check tolerance
cm3/1000S. +- : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2300
Del. quantity
cm3/1000 strokes : 22.0
Tolerance
cm3/1000 str. +- : 5.0
Check tolerance
cm3/1000S. +- : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2600
Del. quantity
cm3/1000 strokes : 3.0
Tolerance
cm3/1000 str. +- : 3.0
Check tolerance
cm3/1000S. +- : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2100
Del. quantity
cm3/1000 strokes : 31.0
Tolerance
cm3/1000 str. +- : 1.0
Check tolerance
cm3/1000S. +- : 2.2
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Del. quantity
cm3/1000 strokes : 33.8
Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. +- : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250

Del. quantity
cm3/1000 strokes : 36.5
Tolerance
cm3/1000 str. +- : 0.5
Check tolerance
cm3/1000S. +- : 2.2
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 415
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. +- : 1.5
Spread
cm3/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 415
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. +- : 1.5
Spread
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. +- : 1.5
Spread
cm3/1000 strokes : 5.0

RESIDUAL QUANTITY

Rated speed rpm : 490
Del. quantity
cm3/1000 strokes : 7.8
Tolerance
cm3/1000 str. +- : 1.0
Check tolerance
cm3/1000S. +- : 2.5
Shutoff solenoid
Volt : 12

CHECKING LOAD-DEPENDENT START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -6.5
Tolerance
cm³/1000 str. +- : 3.0
Check tolerance
cm³/1000S. +- : 4.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -0.4
Tolerance
cm³/1000 str. +- : 0.1
Check tolerance
cm³/1000S. +- : 0.1
Shutoff solenoid
Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 1.5
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1500
Supply pump
pressure bar : -1.0
Tolerance bar +- : 0.2
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Tolerance mm +- : 0.2
Check
tolerance mm +- : 0.6
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 380
Del. quantity
cm³/1000 strokes : 27.0
Tolerance
cm³/1000 str. +- : 10.0

Shutoff solenoid
Volt : 12

Rated speed rpm : 180
Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 str. +- : 25.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,3
Tolerance mm +- : +-0,1
Dimension KF mm : 5,8
Tolerance mm +- : +-0,2
Dimension MS mm : 1,4
Tolerance mm +- : +-0,2

CONTROL LEVER POSITION SET

Control lever
position YA mm : 32,8..34,8

Control lever
position YB mm : 60,5..71,5

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 15.02.96
Test oil : ISO 4113
Part no. : 0 460 404 078
Pump designation : VE4/10F2100L553

Customer-spec. information

Customer : VM
Motor : 425 CLIRZ/CLIRX

TEST BENCH REQUIREMENTS

Overflow restriction mm : 0.75

Inlet press. bar : 0.35
Tolerance bar + : 0.05

Test nozzle holde assembly : 1 688 901 022

Opening pressure bar : 130
Tolerance bar + : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 500
Aneroid pressure hPa : 1000

Setting mm : 7.7
Tolerance mm + : 0.2
Shutoff solenoid Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 500
Aneroid pressure hPa : 1000
Supply pump pressure bar : 5.9
Tolerance bar + : 0.3
Shutoff solenoid Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1500
Aneroid pressure hPa : 1000
Del. quantity cm3/1000 strokes : 68.0
Tolerance cm3/1000 str. + : 0.5
Spread cm3/1000 strokes : 3.0
Check tolerance cm3/1000S. : 3.0
Shutoff solenoid Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 700
Del. quantity cm3/1000 strokes : 44.5
Tolerance cm3/1000 str. + : 0.5
Shutoff solenoid Volt : 12
Check tolerance cm3/1000S. : 3.0

IDLE SETTING

Rated speed rpm : 450
Del. quantity cm3/1000 strokes : 12.0
Tolerance cm3/1000 str. + : 2.0
Shutoff solenoid Volt : 12
Spread cm3/1000 strokes : 3.0
Check tolerance cm3/1000S. : 3.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2300
 Pressure hPa : 1000
 Del. quantity
 cm³/1000 strokes : 49.0
 Tolerance
 cm³/1000 str. + : 3.0
 Shutoff solenoid
 Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 65.0
 Tolerance
 cm³/1000 str. + : 17.0
 Shutoff solenoid
 Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2100
 Aneroid pressure
 hPa : 1000

SV travel mm : 9.8
 Tolerance mm + : 0.5
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 150
 Aneroid pressure
 hPa : 1000

SV travel mm : 5.5
 Tolerance mm + : 1.8
 Check
 tolerance mm + : 1.8
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2100
 Aneroid pressure
 hPa : 1000

SV travel mm : 0.5
 Tolerance mm + : 0.5

Check
 tolerance mm + : 0.5
 Shutoff solenoid
 Volt : 12

Timing device
 solenoid Volt : 100

Rated speed rpm : 1000
 Aneroid pressure
 hPa : 1000

SV travel mm : 9.0
 Tolerance mm + : 0.5

Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1000
 Aneroid pressure
 hPa : 1000

SV travel mm : 0.3
 Tolerance mm + : 0.3

Check
 tolerance mm + : 0.3
 Shutoff solenoid
 Volt : 12

Timing device
 solenoid Volt : 100

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2100
 Aneroid pressure
 hPa : 1000

Supply pump
 pressure bar : 8.0
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 150
 Aneroid pressure
 hPa : 1000

Supply pump
 pressure bar : 4.8
 Tolerance bar + : 0.8
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1000
 Aneroid pressure
 hPa : 1000

Supply pump
 pressure bar : 6.5
 Tolerance bar + : 0.3

Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2100
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 111.1
Tolerance
ccm/10s +- : 55.5

Check tolerance
ccm/10s +- : 55.5
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2300
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 49.0
Tolerance
cm³/1000 str. +- : 3.0
Check tolerance
cm³/1000s. +- : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2450
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 7.0
Check tolerance
cm³/1000s. +- : 5.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2650
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000s. +- : 1.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 700
Aneroid pressure
hPa : 500
Del. quantity
cm³/1000 strokes : 58.5

Tolerance
cm³/1000 str. +- : 0.5
Check tolerance
cm³/1000s. +- : 2.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 2100
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 63.5
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000s. +- : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 700
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 71.0
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000s. +- : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1500
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 68.0
Tolerance
cm³/1000 str. +- : 0.5
Check tolerance
cm³/1000s. +- : 2.0
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000s. +- : 1.5

IDLE DELIVERY

Rated speed rpm : 800

Del. quantity
cm³/1000 strokes : 4.0
Tolerance
cm³/1000 str. +- : 2.5
Check tolerance
cm³/1000s. +- : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 5.0
Tolerance
cm³/1000 str. +- : 2.5
Check tolerance
cm³/1000s. +- : 5.0
Shutoff solenoid
Volt : 12

EXHAUST-GAS RECIRCULATION

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 50.0
Tolerance
cm³/1000 str. +- : 1.0
Check tolerance
cm³/1000s. +- : 2.5
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 40.0
Tolerance
cm³/1000 str. +- : 10.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 65.0
Tolerance
cm³/1000 str. +- : 17.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,3
Tolerance mm +- : +-0,1
Dimension KF mm : 5,4
Tolerance mm +- : +-0,2
Dimension MS mm : 0,8
Tolerance mm +- : +-0,2

POTENTIOMETER SET

1. measurement
voltage Volt : 5,0
1. measurement
voltage Volt : 2,31

CONTROL LEVER POSITION SET

Control lever
position YA mm : 29,5..31,5

Control lever
position YB mm : 47,0..57,0

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 13.04.95
Test oil : ISO 4113

Part no. : 0 460 414 114
Pump designation : VE4/11F1250L613

Customer-spec. information
Customer : IVECO-FIAT
Motor : 8045.25.210
Power KW : 63.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 027

Opening pressure
bar : 250
Tolerance bar ± : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 800
Setting mm : 2.7
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 800
Supply pump
pressure bar : 6.0
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 800
Del. quantity
cm3/1000 strokes : 67.5
Tolerance
cm3/1000 str. ± : 0.5
Spread
cm3/1000 strokes : 3.5
Shutoff solenoid
Volt : 12

IDLE SETTING

Rated speed rpm : 325
Del. quantity
cm3/1000 strokes : 13.0
Tolerance
cm3/1000 str. ± : 2.0
Shutoff solenoid
Volt : 12
Spread
cm3/1000 strokes : 3.5
Check tolerance
cm3/1000S. : 3.5

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1325
Del. quantity
cm3/1000 strokes : 45.0
Tolerance
cm3/1000 str. ± : 2.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100

Del. quantity
cm³/1000 strokes : 90.0
Tolerance
cm³/1000 str. ± : 25.0
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1150

SV travel mm : 6.4
Tolerance mm ± : 0.4
Check
tolerance mm ± : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 700

SV travel mm : 1.8
Tolerance mm ± : 0.4
Check
tolerance mm ± : 0.7
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1250
Supply pump
pressure bar : 8.2
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 400
Supply pump
pressure bar : 4.0
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 1250
Over-flow quantity
ccm/10s : 97.2
Tolerance
ccm/10s ± : 41.6

Check tolerance
ccm/10s ± : 41.6

Shutoff solenoid
Volt : 12

Rated speed rpm : 400
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s ± : 22.2

Check tolerance
ccm/10s ± : 22.2
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1325
Del. quantity
cm³/1000 strokes : 45.0
Tolerance
cm³/1000 str. ± : 2.0
Check tolerance
cm³/1000s. ± : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1300
Del. quantity
cm³/1000 strokes : 55.0
Tolerance
cm³/1000 str. ± : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1420
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000s. ± : 1.5
Shutoff solenoid
Volt : 12

Aneroid pressure
hPa :

LDA/
HBA stroke mm : 6,2

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : 59.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000s. ± : 3.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 69.0
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 3.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 67.5
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 3.0
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 325
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5
Spread
cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 325
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. + : 1.5
Spread
cm³/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 250
Del. quantity
cm³/1000 strokes : 65.0
Tolerance
cm³/1000 str. + : 15.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 150
Del. quantity
cm³/1000 strokes : 100.0
Tolerance
cm³/1000 str. + : 25.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/
HBA stroke mm : 6,2
Dimension K mm : 3,3
Tolerance mm + : +0,1
Dimension KF mm : 5,5
Tolerance mm + : +0,2
Dimension MS mm : 0,8
Tolerance mm + : +0,2

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 06.09.95
Test oil : ISO 4113

Part no. : 0 460 485 024
Pump designation : VE5/8F2100L632

Customer-spec. information
Customer : VW
Motor : 2.4l WK SD
Power KW : 57.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holder
assembly : 1 688 901 000

Opening pressure
bar : 147
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1250
Setting mm : 2.4
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250
Supply pump
pressure bar : 6.0
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : 36.5
Tolerance
cm3/1000 str. ± : 0.5
Spread
cm3/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

IDLE SETTING

Rated speed rpm : 415
Del. quantity
cm3/1000 strokes : 8.0
Tolerance
cm3/1000 str. ± : 1.0
Shutoff solenoid
Volt : 12
Spread
cm3/1000 strokes : 2.0
Check tolerance
cm3/1000S. : 3.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2400
Del. quantity
cm3/1000 strokes : 12.0
Tolerance
cm3/1000 str. ± : 2.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100

Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 str. ± : 25.0
Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -7.0
Tolerance
cm³/1000 str. ± : 1.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 str. ± : 0.1
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -0.4
Tolerance
cm³/1000 str. ± : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1790
SV travel mm : 5.4
Tolerance mm ± : 0.4
Check
tolerance mm ± : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 1000

SV travel mm : 1.1
Tolerance mm ± : 0.4

Check
tolerance mm ± : 0.7
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1790
Supply pump
pressure bar : 7.5
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 1000
Supply pump
pressure bar : 5.3
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2100
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s ± : 41.6

Check tolerance
ccm/10s ± : 55.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s ± : 22.2

Check tolerance
ccm/10s ± : 34.7
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2400
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 str. ± : 2.0
Check tolerance
cm³/1000s. ± : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2300
Del. quantity
cm³/1000 strokes : 22.0

Tolerance
 cm3/1000 str. + : 5.0
 Check tolerance
 cm3/1000S. + : 6.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2600
 Del. quantity
 cm3/1000 strokes : 3.0
 Tolerance
 cm3/1000 str. + : 3.0
 Check tolerance
 cm3/1000S. + : 3.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2100
 Del. quantity
 cm3/1000 strokes : 31.0
 Tolerance
 cm3/1000 str. + : 1.0
 Check tolerance
 cm3/1000S. + : 2.2
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 600
 Del. quantity
 cm3/1000 strokes : 33.8
 Tolerance
 cm3/1000 str. + : 1.5
 Check tolerance
 cm3/1000S. + : 3.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1250
 Del. quantity
 cm3/1000 strokes : 36.5
 Tolerance
 cm3/1000 str. + : 0.5
 Check tolerance
 cm3/1000S. + : 2.2
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF
 CONTROL LEVER, IDLE STOP

Rated speed rpm : 415
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. + : 1.5
 Check tolerance
 cm3/1000S. + : 1.5

Spread
 cm3/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 415
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. + : 1.5
 Spread
 cm3/1000 strokes : 5.0
 Check tolerance
 cm3/1000S. + : 1.5
 Spread
 cm3/1000 strokes : 5.0

CHECKING LOAD-DEPENDENT
 START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1500
 Del. quantity
 cm3/1000 strokes : -6.5
 Tolerance
 cm3/1000 str. + : 3.0
 Check tolerance
 cm3/1000S. + : 4.0
 Shutoff solenoid
 Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
 Del. quantity
 cm3/1000 strokes : -0.4
 Tolerance
 cm3/1000 str. + : 0.1
 Check tolerance
 cm3/1000S. + : 0.1
 Shutoff solenoid
 Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1500
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. + : 1.5
 Check tolerance
 cm3/1000S. + : 1.5
 Shutoff solenoid
 Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1500
Supply pump
pressure bar : -1.0
Tolerance bar \pm : 0.2
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Tolerance mm \pm : 0.2
Check
tolerance mm \pm : 0.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 180
Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 str. \pm : 25.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,3
Tolerance mm \pm : $\pm 0,1$
Dimension KF mm : 5,8
Tolerance mm \pm : $\pm 0,2$
Dimension MS mm : 1,4
Tolerance mm \pm : $\pm 0,2$

CONTROL LEVER POSITION SET

Control lever
position YA mm : 32,8..34,8

Control lever
position VB mm : 60,5..71,5

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 09.03.95
Test oil : ISO 4113
Part no. : 0 460 485 027
Pump designation : VE5/8F2100L633-1

Customer-spec. information
Customer : VW
Motor : 2,4L SD f. T4

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 000

Opening pressure
bar : 147
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

D02

Rated speed rpm : 1500

Setting mm : 4.3
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1500
Supply pump
pressure bar : 7.4
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : 35.5
Tolerance
cm3/1000 str. ± : 0.5
Spread
cm3/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

IDLE SETTING

Rated speed rpm : 415
Del. quantity
cm3/1000 strokes : 8.0
Tolerance
cm3/1000 str. ± : 1.0
Shutoff solenoid
Volt : 12
Spread
cm3/1000 strokes : 2.0
Check tolerance
cm3/1000S. : 3.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2400
Del. quantity
cm3/1000 strokes : 12.0
Tolerance
cm3/1000 str. ± : 2.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100

Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 str. + : 25.0
Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -7.0
Tolerance
cm³/1000 str. + : 1.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 str. + : 0.1
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -1.2
Tolerance
cm³/1000 str. + : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1790
SV travel mm : 6.3
Tolerance mm + : 0.4
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 1100
SV travel mm : 1.6
Tolerance mm + : 0.4

Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1790
Supply pump
pressure bar : 8.1
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 1100
Supply pump
pressure bar : 6.2
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2100
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s + : 41.6

Check tolerance
ccm/10s + : 55.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s + : 22.2

Check tolerance
ccm/10s + : 34.7
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2400
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 str. + : 2.0
Check tolerance
cm³/1000s. + : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2300
Del. quantity
cm³/1000 strokes : 22.0

Tolerance
cm3/1000 str. + : 5.0
Check tolerance
cm3/1000S. + : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2600
Del. quantity
cm3/1000 strokes : 3.0
Tolerance
cm3/1000 str. + : 3.0
Check tolerance
cm3/1000S. + : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2100
Del. quantity
cm3/1000 strokes : 29.5
Tolerance
cm3/1000 str. + : 1.0
Check tolerance
cm3/1000S. + : 2.2
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Del. quantity
cm3/1000 strokes : 33.3
Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000S. + : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : 35.5
Tolerance
cm3/1000 str. + : 0.5
Check tolerance
cm3/1000S. + : 2.2
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 415
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000S. + : 1.5

Spread
cm3/1000 strokes : 5.0

CHECKING LOAD-DEPENDENT
START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm3/1000 strokes : -10.5
Tolerance
cm3/1000 str. + : 3.0
Check tolerance
cm3/1000S. + : 4.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm3/1000 strokes : -1.2
Tolerance
cm3/1000 str. + : 0.1
Check tolerance
cm3/1000S. + : 0.1
Shutoff solenoid
Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000S. + : 1.5
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1500
Supply pump
pressure bar : -1.0
Tolerance bar + : 0.2
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500

Tolerance mm \pm : 0.2
Check
tolerance mm \pm : 0.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 180
Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 str. \pm : 25.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,3
Tolerance mm \pm : $\pm 0,1$
Dimension KF mm : 5,8
Tolerance mm \pm : $\pm 0,2$
Dimension MS mm : 1,4
Tolerance mm \pm : $\pm 0,1$

CONTROL LEVER POSITION SET

Control lever
position YA mm : 32,8..34,8

Control lever
position YB mm : 60,5..71,5

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 06.09.95

Test oil : ISO 4113

Part no. : 0 460 485 028

Pump designation : VE5/8F2100L633-2

Customer-spec. information

Customer : VW

Motor : 2,4L SD

Power KW : 57.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return

temperature °C : 45

Tolerance °C ± : 1

Overflow

restriction mm : 0.55

Inlet press. bar : 0.35

Tolerance bar ± : 0.05

Test nozzle holde

assembly : 1 688 901 000

Opening pressure

bar : 147

Tolerance bar ± : 3

Test Lines : 1 630 750 000

Outside diameter : 6.00

x inside diameter : 2.00

x length mm : 840

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1500

Setting mm : 4.3

Tolerance mm ± : 0.2

Shutoff solenoid

Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1500

Supply pump

pressure bar : 7.4

Tolerance bar ± : 0.3

Shutoff solenoid

Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1250

Del. quantity

cm³/1000 strokes : 36.5

Tolerance

cm³/1000 str. ± : 0.5

Spread

cm³/1000 strokes : 2.0

Shutoff solenoid

Volt : 12

IDLE SETTING

Rated speed rpm : 415

Del. quantity

cm³/1000 strokes : 8.0

Tolerance

cm³/1000 str. ± : 1.0

Shutoff solenoid

Volt : 12

Spread

cm³/1000 strokes : 2.0

Check tolerance

cm³/1000S. : 3.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2400

Del. quantity

cm³/1000 strokes : 12.0

Tolerance

cm³/1000 str. ± : 2.0

Shutoff solenoid

Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100

Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 str. +- : 25.0
Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -7.0
Tolerance
cm³/1000 str. +- : 1.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 str. +- : 0.1
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -1.2
Tolerance
cm³/1000 str. +- : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1790
SV travel mm : 6.3
Tolerance mm +- : 0.4
Check
tolerance mm +- : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 1100

SV travel mm : 1.6
Tolerance mm +- : 0.4

Check
tolerance mm +- : 0.7
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1790
Supply pump
pressure bar : 8.1
Tolerance bar +- : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 1100
Supply pump
pressure bar : 6.2
Tolerance bar +- : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2100
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s +- : 41.6

Check tolerance
ccm/10s +- : 55.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s +- : 22.2

Check tolerance
ccm/10s +- : 34.7
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2400
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 str. +- : 2.0
Check tolerance
cm³/1000s. +- : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2300
Del. quantity
cm³/1000 strokes : 22.0

Tolerance
cm3/1000 str. +- : 5.0
Check tolerance
cm3/1000S. +- : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2600
Del. quantity
cm3/1000 strokes : 3.0
Tolerance
cm3/1000 str. +- : 3.0
Check tolerance
cm3/1000S. +- : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2100
Del. quantity
cm3/1000 strokes : 30.5
Tolerance
cm3/1000 str. +- : 1.0
Check tolerance
cm3/1000S. +- : 2.2
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Del. quantity
cm3/1000 strokes : 34.3
Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. +- : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : 36.5
Tolerance
cm3/1000 str. +- : 0.5
Check tolerance
cm3/1000S. +- : 2.2
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 415
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. +- : 1.5

Spread
cm3/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 415
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. +- : 1.5
Spread
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. +- : 1.5
Spread
cm3/1000 strokes : 5.0

CHECKING LOAD-DEPENDENT
START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm3/1000 strokes : -10.5
Tolerance
cm3/1000 str. +- : 3.0
Check tolerance
cm3/1000S. +- : 4.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm3/1000 strokes : -1.2
Tolerance
cm3/1000 str. +- : 0.1
Check tolerance
cm3/1000S. +- : 0.1
Shutoff solenoid
Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. +- : 1.5
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1500
Supply pump
pressure bar : -1.0
Tolerance bar \pm : 0.2
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Tolerance mm \pm : 0.2
Check
tolerance mm \pm : 0.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 180
Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 str. \pm : 25.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,3
Tolerance mm \pm : $\pm 0,1$
Dimension KF mm : 5,8
Tolerance mm \pm : $\pm 0,2$
Dimension MS mm : 1,4
Tolerance mm \pm : $\pm 0,2$

CONTROL LEVER POSITION SET

Control lever
position YA mm : 32,8..34,8

Control lever
position YB mm : 60,5..71,5

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 15.06.92
Test oil : ISO 4113

Part no. : 0 460 484 010
Pump designation : VE4/8F2300R171

Customer-spec. information
Customer : PSA
Motor : XUD7

TEST BENCH REQUIREMENTS

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar +- : 0.05

Test nozzle holde
assembly : 1 688 901 022

Opening pressure
bar : 130
Tolerance bar +- : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1250

Setting mm : 3.6
Tolerance mm +- : 0.2

D10

Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250
Supply pump
pressure bar : 4.6
Tolerance bar +- : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : 28.5
Tolerance
cm3/1000 str. +- : 0.5
Spread
cm3/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 550
Del. quantity
cm3/1000 strokes : 4.0
Tolerance
cm3/1000 str. +- : 0.5
Shutoff solenoid
Volt : 12

IDLE DELIVERY

Rated speed rpm : 375
Del. quantity
cm3/1000 strokes : 10.0
Tolerance
cm3/1000 str. +- : 2.0
Spread
cm3/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

HIGH IDLE SETTING

Rated speed rpm : 450
Del. quantity
cm3/1000 strokes : 10.0
Tolerance
cm3/1000 str. +- : 2.0
Shutoff solenoid
Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2440
 Del. quantity
 cm³/1000 strokes : 22.0
 Tolerance
 cm³/1000 str. ± : 3.0
 Shutoff solenoid
 Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 62.0
 Tolerance
 cm³/1000 str. ± : 20.0
 Shutoff solenoid
 Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1250
 Del. quantity
 cm³/1000 strokes : -6.0
 Tolerance
 cm³/1000 str. ± : 1.0
 Shutoff solenoid
 Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1250
 Del. quantity
 cm³/1000 strokes : -0.2
 Tolerance
 cm³/1000 str. ± : 0.1
 Shutoff solenoid
 Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
 Del. quantity
 cm³/1000 strokes : -1.0
 Tolerance
 cm³/1000 str. ± : 0.1
 Shutoff solenoid
 Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2000

SV travel mm : 7.9
 Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.7
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 800

SV travel mm : 1.2
 Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.7
 Shutoff solenoid
 Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2000
 Supply pump
 pressure bar : 6.7
 Tolerance bar ± : 0.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 800
 Supply pump
 pressure bar : 3.3
 Tolerance bar ± : 0.3
 Shutoff solenoid
 Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2250
 Overflow quantity
 ccm/10s : 27.2
 Tolerance
 ccm/10s ± : 41.6
 Check tolerance
 ccm/10s ± : 41.6
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Overflow quantity
 ccm/10s : 62.5
 Tolerance
 ccm/10s ± : 20.8
 Check tolerance
 ccm/10s ± : 20.8
 Shutoff solenoid
 Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2440

Del. quantity
cm3/1000 strokes : 22.0
Tolerance
cm3/1000 str. +- : 3.0
Check tolerance
cm3/1000S. +- : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2690
Del. quantity
cm3/1000 strokes : 7.0
Check tolerance
cm3/1000S. +- : 3.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 2540
Del. quantity
cm3/1000 strokes : 14.5
Tolerance
cm3/1000 str. +- : 3.0
Check tolerance
cm3/1000S. +- : 4.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 2250
Del. quantity
cm3/1000 strokes : 28.5
Tolerance
cm3/1000 str. +- : 1.0
Check tolerance
cm3/1000S. +- : 2.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 800
Del. quantity
cm3/1000 strokes : 29.0
Tolerance
cm3/1000 str. +- : 1.0
Check tolerance
cm3/1000S. +- : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2000
Del. quantity
cm3/1000 strokes : 28.5
Tolerance
cm3/1000 str. +- : 1.0
Check tolerance
cm3/1000S. +- : 2.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 29.5

Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. +- : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : 28.5
Tolerance
cm3/1000 str. +- : 0.5
Check tolerance
cm3/1000S. +- : 2.3
Shutoff solenoid
Volt : 12

MECHANICAL SHUTOFF

Rated speed rpm : 2250
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. +- : 1.5
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 375
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. +- : 1.5

CHECKING LOAD-DEPENDENT START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : -9.0
Tolerance
cm3/1000 str. +- : 2.0
Check tolerance
cm3/1000S. +- : 5.0

Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -1.0
Tolerance
cm³/1000 str. +- : 0.1
Check tolerance
cm³/1000S. +- : 0.1
Shutoff solenoid
Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : 5.0
Tolerance
cm³/1000 str. +- : 3.0
Check tolerance
cm³/1000S. +- : 3.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1250
Supply pump
pressure bar : -0.8
Tolerance bar +- : 0.3
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Tolerance mm +- : 0.5
Check
tolerance mm +- : 0.6
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 24.0
Tolerance
cm³/1000 str. +- : 10.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 200
Del. quantity
cm³/1000 strokes : 64.0

Tolerance
cm³/1000 str. +- : 20.0

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,3
Tolerance mm +- : +-0,1
Dimension KF mm : 5,5
Tolerance mm +- : +-0,2
Dimension MS mm : 1,4
Tolerance mm +- : +-0,2

CONTROL LEVER POSITION SET

Control lever
position YA mm : 19,7..21,7

Control lever
position YB mm : 84,0..96,0

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 01.04.95
Test oil : ISO 4113

Part no. : 0 460 416 036
Pump designation : VE6/11F1250R181

Customer-spec. information

Customer : IVECO-FIAT
Motor : 8065.05.200
Power KW : 74.0

TEST BENCH REQUIREMENTS

Calibrating-oil return

temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 020

Opening pressure
bar : 172
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1000
Setting mm : 5,1
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1000
Supply pump
pressure bar : 5.5
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 800
Del. quantity
cm3/1000 strokes : 64.0
Tolerance
cm3/1000 str. ± : 0.5
Spread
cm3/1000 strokes : 3.5
Shutoff solenoid
Volt : 12

IDLE SETTING

Rated speed rpm : 325
Del. quantity
cm3/1000 strokes : 10.0
Tolerance
cm3/1000 str. ± : 2.0
Shutoff solenoid
Volt : 12
Spread
cm3/1000 strokes : 3.5
Check tolerance
cm3/1000s. : 4.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1350
Del. quantity
cm3/1000 strokes : 36.0
Tolerance
cm3/1000 str. ± : 3.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100

Del. quantity
cm3/1000 strokes : 120.0
Tolerance
cm3/1000 str. +- : 25.0
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 600
SV travel mm : 1,1
Tolerance mm +- : 0.4
Check
tolerance mm +- : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250
SV travel mm : 5,8
Tolerance mm +- : 0.4
Check
tolerance mm +- : 0.7
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1250
Supply pump
pressure bar : 6.6
Tolerance bar +- : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Supply pump
pressure bar : 3.4
Tolerance bar +- : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 1250
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s +- : 41.6
Check tolerance
ccm/10s +- : 41.6

Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s +- : 22.2

Check tolerance
ccm/10s +- : 22.2
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1350
Del. quantity
cm3/1000 strokes : 36.0
Tolerance
cm3/1000 str. +- : 3.0
Check tolerance
cm3/1000S. +- : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1400
Del. quantity
cm3/1000 strokes : 5.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 1450
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. +- : 1.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : 54.5
Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. +- : 3.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 61.0
Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. +- : 3.5

Shutoff solenoid
 Volt : 12

Rated speed rpm : 800
 Del. quantity
 cm3/1000 strokes : 64.0
 Tolerance
 cm3/1000 str. +- : 0.5
 Check tolerance
 cm3/1000S. +- : 3.0
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF
 CONTROL LEVER, IDLE STOP

Rated speed rpm : 325
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. +- : 1.5
 Check tolerance
 cm3/1000S. +- : 1.5
 Spread
 cm3/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 325
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. +- : 1.5
 Spread
 cm3/1000 strokes : 5.0
 Check tolerance
 cm3/1000S. +- : 1.5
 Spread
 cm3/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 400
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. +- : 1.5
 Check tolerance
 cm3/1000S. +- : 1.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 360
 Del. quantity
 cm3/1000 strokes : 5.0
 Tolerance
 cm3/1000 str. +- : 3.0

Check tolerance
 cm3/1000S. +- : 4.0
 Shutoff solenoid
 Volt : 12

START TRANSITION

Rated speed rpm : 250
 Del. quantity
 cm3/1000 strokes : 50.0
 Tolerance
 cm3/1000 str. +- : 10.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 150
 Del. quantity
 cm3/1000 strokes : 120.0
 Tolerance
 cm3/1000 str. +- : 25.0
 Shutoff solenoid
 Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,3
 Tolerance mm +- : +0,1
 Dimension KF mm : 5,3
 Tolerance mm +- : +0,2
 Dimension MS mm : 1,6
 Tolerance mm +- : +0,2

CONTROL LEVER POSITION
 SET

Control lever
 position YA mm : 34,9..36,9

Control lever
 position YB mm : 45,7..51,1

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 29.06.95
Test oil : ISO 4113

Part no. : 0 460 426 143
Pump designation : VE6/12F1150R225-23

Customer-spec. information
Customer : CDC
Motor : 6 BT -5.9 IND

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C +- : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar +- : 0.05

Test nozzle holde
assembly : 1 688 901 027

Opening pressure
bar : 250
Tolerance bar +- : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 1,3
Tolerance mm +- : +-0,02
Outlet : D

Prestroke

(as of UT) mm : 0,3
Tolerance mm +- : +-0,02
Check
tolerance mm +- : +-0,04

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 750
Setting mm : 3.6
Tolerance mm +- : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 750
Supply pump
pressure bar : 3.8
Tolerance bar +- : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1150
Del. quantity
cm3/1000 strokes : 71.5
Tolerance
cm3/1000 str. +- : 0.5
Spread
cm3/1000 strokes : 4.0
Shutoff solenoid
Volt : 12

IDLE SETTING

Rated speed rpm : 375
Del. quantity
cm3/1000 strokes : 11.0
Tolerance
cm3/1000 str. +- : 3.0
Shutoff solenoid
Volt : 12
Spread
cm3/1000 strokes : 5.5
Check tolerance
cm3/1000s. : 7.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1220
 Del. quantity
 cm³/1000 strokes : 53.0
 Tolerance
 cm³/1000 str. + : 3.0
 Shutoff solenoid
 Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 90.0
 Tolerance
 cm³/1000 str. + : 30.0
 Shutoff solenoid
 Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1100
 SV travel mm : 5.9
 Tolerance mm + : 0.4
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 SV travel mm : 1.9
 Tolerance mm + : 0.4
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1100
 Supply pump
 pressure bar : 5.1
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Supply pump
 pressure bar : 2.7
 Tolerance bar + : 0.3

Shutoff solenoid
 Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 1150
 Overflow quantity
 ccm/10s : 97.2
 Tolerance
 ccm/10s + : 41.6

Check tolerance
 ccm/10s + : 41.6
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Overflow quantity
 ccm/10s : 63.8
 Tolerance
 ccm/10s + : 22.2

Check tolerance
 ccm/10s + : 22.2
 Shutoff solenoid
 Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1220
 Del. quantity
 cm³/1000 strokes : 53.0
 Tolerance
 cm³/1000 str. + : 3.0
 Check tolerance
 cm³/1000s. + : 6.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1250
 Del. quantity
 cm³/1000 strokes : 35.0
 Check tolerance
 cm³/1000s. + : 20.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1300
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000s. + : 1.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 750
 Del. quantity
 cm³/1000 strokes : 77.0

Tolerance
 cm³/1000 str. ± : 2.0
 Check tolerance
 cm³/1000S. ± : 3.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Del. quantity
 cm³/1000 strokes : 62.5
 Tolerance
 cm³/1000 str. ± : 4.0
 Check tolerance
 cm³/1000S. ± : 6.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1150
 Del. quantity
 cm³/1000 strokes : 71.5
 Tolerance
 cm³/1000 str. ± : 0.5
 Check tolerance
 cm³/1000S. ± : 3.0
 Shutoff solenoid
 Volt : 12

MECHANICAL SHUTOFF

Rated speed rpm : 1150
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. ± : 1.5
 Spread
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. ± : 1.5
 Spread
 cm³/1000 strokes : 5.0
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 375
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. ± : 1.5
 Check tolerance
 cm³/1000S. ± : 1.5
 Spread
 cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 375
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. ± : 1.5
 Spread
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. ± : 1.5
 Spread
 cm³/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 450
 Del. quantity
 cm³/1000 strokes : 2.0
 Tolerance
 cm³/1000 str. ± : 2.0
 Check tolerance
 cm³/1000S. ± : 2.0
 Shutoff solenoid
 Volt : 12

START TRANSITION

Rated speed rpm : 240
 Del. quantity
 cm³/1000 strokes : 40.0
 Tolerance
 cm³/1000 str. ± : 20.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 130
 Del. quantity
 cm³/1000 strokes : 100.0
 Tolerance
 cm³/1000 str. ± : 30.0
 Shutoff solenoid
 Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension KF mm : 5,2
 Tolerance mm ± : +0,2
 MS1 dimension mm : 1,6
 Tolerance mm ± : +0.15/-0,1

CONTROL LEVER POSITION SET

Control lever
position YA mm : 35,8..37,8

Control lever
position YB mm : 41,5..47,1

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 13.03.95
Test oil : ISO 4113

Part no. : 0 460 414 124
Pump designation : VE4/11F2250R274-1

Customer-spec. information
Customer : PERKINS
Motor : Prima M 80 T
Power KW : 60.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holder
assembly : 1 688 901 022

Opening pressure
bar : 130
Tolerance bar ± : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1500
Aneroid pressure
hPa : 1000

Setting mm : 3.8
Tolerance mm ± : 0.2

SUPPLY PUMP PRESSURE

Rated speed rpm : 1500
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 7.1
Tolerance bar ± : 0.3

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1500
Aneroid pressure
hPa : 1000
Del. quantity
cm3/1000 strokes : 61.0
Tolerance
cm3/1000 str. ± : 0.5
Spread
cm3/1000 strokes : 4.0
Check tolerance
cm3/1000S. : 4.0

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 600
Del. quantity
cm3/1000 strokes : 19.0
Tolerance
cm3/1000 str. ± : 0.5
Spread
cm3/1000 strokes : 4.0
Check tolerance
cm3/1000S. : 4.0
Check tolerance
cm3/1000S. : 4.0

IDLE SETTING

Rated speed rpm : 350
Del. quantity
cm3/1000 strokes : 11.0
Tolerance
cm3/1000 str. ± : 1.0
Spread
cm3/1000 strokes : 3.0
Check tolerance
cm3/1000S. : 3.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2500
 Pressure hPa : 1000
 Del. quantity
 cm³/1000 strokes : 40.0
 Tolerance
 cm³/1000 str. ± : 2.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 80.0
 Tolerance
 cm³/1000 str. ± : 18.0

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1900
 Aneroid pressure
 hPa : 1000
 SV travel mm : 6.1
 Tolerance mm ± : 0.5
 Check
 tolerance mm ± : 0.7

Rated speed rpm : 1100
 Aneroid pressure
 hPa : 1000

SV travel mm : 1.4
 Tolerance mm ± : 0.5
 Check
 tolerance mm ± : 0.7

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1900
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 8.0
 Tolerance bar ± : 0.3

Rated speed rpm : 600
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 5.1
 Tolerance bar ± : 0.3

OVERFLOW QUANTITY

Rated speed rpm : 2250
 Aneroid pressure
 hPa : 1000
 Overflow quantity
 ccm/10s : 97.2
 Tolerance
 ccm/10s ± : 41.6

Check tolerance
 ccm/10s ± : 41.6

Rated speed rpm : 600
 Aneroid pressure
 hPa : 1000
 Overflow quantity
 ccm/10s : 63.8
 Tolerance
 ccm/10s ± : 22.2

Check tolerance
 ccm/10s ± : 22.2

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2500
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 40.0
 Tolerance
 cm³/1000 str. ± : 2.0
 Check tolerance
 cm³/1000s. ± : 6.0

Rated speed rpm : 2450
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 60.0
 Tolerance
 cm³/1000 str. ± : 6.0

Rated speed rpm : 2700
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. ± : 1.5
 Check tolerance
 cm³/1000s. ± : 1.5

Rated speed rpm : 600

Aneroid pressure
hPa : 300

LDA/
HBA stroke mm : 6.1

Del. quantity
cm³/1000 strokes : 37.0

Tolerance
cm³/1000 str. + : 0.5

Check tolerance
cm³/1000S. + : 4.5

Rated speed rpm : 2250

Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 66.7

Tolerance
cm³/1000 str. + : 2.0

Check tolerance
cm³/1000S. + : 3.0

Rated speed rpm : 600

Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 58.5

Tolerance
cm³/1000 str. + : 4.0

Check tolerance
cm³/1000S. + : 5.0

Rated speed rpm : 1500

Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 61.0

Tolerance
cm³/1000 str. + : 0.5

Check tolerance
cm³/1000S. + : 3.0

MECHANICAL SHUTOFF

Rated speed rpm : 2250

Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 1.5

Tolerance
cm³/1000 str. + : 1.5

Check tolerance
cm³/1000S. + : 1.5

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 350

Del. quantity
cm³/1000 strokes : 1.5

Tolerance
cm³/1000 str. + : 1.5

Check tolerance
cm³/1000S. + : 1.5

Shutoff solenoid
Volt : 12

IDLE DELIVERY

Rated speed rpm : 500

Del. quantity
cm³/1000 strokes : 1.5

Tolerance
cm³/1000 str. + : 1.5

Check tolerance
cm³/1000S. + : 1.5

Rated speed rpm : 250

Del. quantity
cm³/1000 strokes : 22.0

Tolerance
cm³/1000 str. + : 6.0

START TRANSITION

Rated speed rpm : 500

Del. quantity
cm³/1000 strokes : 20.0

Tolerance
cm³/1000 str. + : 10.0

Rated speed rpm : 350

Del. quantity
cm³/1000 strokes : 35.0

Tolerance
cm³/1000 str. + : 8.0

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/
HBA stroke mm : 6.1

Dimension K mm : 3,3

Tolerance mm + : +0,1

Dimension KF mm : 6,6

Tolerance mm + : +0,2

MS1 dimension mm : 1,9

Tolerance mm + : +0,15/-0,1

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 37,0..39,0

Control lever
position YB mm : 57,0..68,0

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 05.12.92

Test oil : ISO 4113

Part no. : 0 460 414 046

Pump designation : VE4/11F1500R275

Customer-spec. information

Customer : PERKINS

Motor : 500 SERIES

TEST BENCH REQUIREMENTS

Calibrating-oil
return

temperature °C : 45

Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35

Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 022

Opening pressure
bar : 130

Tolerance bar ± : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00

x length mm : 450

REMARKS

BEGINNING OF DELIVERY

Prestroke

(as of UT) mm : 0,5
Tolerance mm ± : ±0,02
Check
tolerance mm ± : ±0,04

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1100

Setting mm : 2.7

Tolerance mm ± : 0.2

Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1100

Supply pump
pressure bar : 5.2

Tolerance bar ± : 0.3

Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1200

Del. quantity
cm³/1000 strokes : 45.5

Tolerance
cm³/1000 str. ± : 0.5

Spread
cm³/1000 strokes : 3.5

Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

IDLE SETTING

Rated speed rpm : 300

Del. quantity
cm³/1000 strokes : 12.0

Tolerance
cm³/1000 str. ± : 2.0

Shutoff solenoid
Volt : 12

Spread
cm³/1000 strokes : 3.0

Check tolerance
cm³/1000S. : 3.0

KSB/AFB Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1550
 Del. quantity
 cm³/1000 strokes : 32.0
 Tolerance
 cm³/1000 str. ± : 5.0
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 85.0
 Tolerance
 cm³/1000 str. ± : 15.0
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1350
 SV travel mm : 4.0
 Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.7
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12
 Rated speed rpm : 700
 SV travel mm : 0.5
 Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.7
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12
 Rated speed rpm : 700
 SV travel mm : 2.2

Tolerance mm ± : 1.0
 Check
 tolerance mm ± : 1.2
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1500

SV travel mm : 4.1
 Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.7
 Shutoff solenoid
 Volt : 12

KSB/AFB Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1500
 Supply pump
 pressure bar : 6.7
 Tolerance bar ± : 0.3
 Shutoff solenoid
 Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 700
 Supply pump
 pressure bar : 3.8
 Tolerance bar ± : 0.3
 Shutoff solenoid
 Volt : 12

KSB/AFB Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 1450
 Overflow quantity
 ccm/10s : 97.2
 Tolerance
 ccm/10s ± : 41.6

Check tolerance
 ccm/10s ± : 41.6
 Shutoff solenoid
 Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 600
 Overflow quantity
 ccm/10s : 63.8
 Tolerance
 ccm/10s ± : 22.2

Check tolerance
 ccm/10s ± : 22.2

Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1550
Del. quantity
cm³/1000 strokes : 32.0
Tolerance
cm³/1000 str. + : 5.0
Check tolerance
cm³/1000S. + : 6.0
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 1570
Del. quantity
cm³/1000 strokes : 16.0
Check tolerance
cm³/1000S. + : 10.0
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 1630
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 1450
Del. quantity
cm³/1000 strokes : 45.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 3.0
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 str. + : 1.5
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 20.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 3.0
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 1200
Del. quantity
cm³/1000 strokes : 45.5
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 2.5
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5

KSB/AFB Volt : 12

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5

KSB/AFB Volt : 12

IDLE DELIVERY

Rated speed rpm : 430
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5

Check tolerance
 cm³/1000s. + : 1.5
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12
 Rated speed rpm : 350
 Del. quantity
 cm³/1000 strokes : 6.0
 Tolerance
 cm³/1000 str. + : 3.0
 Check tolerance
 cm³/1000s. + : 4.5
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

Control lever
 position YA mm : 37,0..39,0

Control lever
 position YB mm : 58,7..69,9

End of test-specification sheet

START TRANSITION

Rated speed rpm : 400
 Del. quantity
 cm³/1000 strokes : 27.0
 Tolerance
 cm³/1000 str. + : 8.0
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

Rated speed rpm : 300
 Del. quantity
 cm³/1000 strokes : 37.0
 Tolerance
 cm³/1000 str. + : 8.0
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : -
 Dimension KF mm : 5,4
 Tolerance mm + : +0,2
 MS1 dimension mm : 1,6
 Tolerance mm + : +0,15/-0,1

CONTROL LEVER POSITION
 SET

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 11.09.95
 Test oil : ISO 4113
 Part no. : 0 460 424 036
 Pump designation : VE4/12F1400R279

Customer-spec. information

Customer : PERKINS
 Motor : NA 4.40 LKW

TEST BENCH REQUIREMENTS

Calibrating-oil return

temperature °C : 45
 Tolerance °C +- : 1

Overflow restriction mm : 0.55

Inlet press. bar : 0.35
 Tolerance bar +- : 0.05

Test nozzle holde assembly : 1 688 901 020

Opening pressure bar : 172
 Tolerance bar +- : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
 x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

E01

Plunger stroke mm : 1,0
 Outlet : C

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 950
 Setting mm : 2.5
 Tolerance mm +- : 0.2
 Shutoff solenoid Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 950
 Supply pump pressure bar : 5.7
 Tolerance bar +- : 0.3
 Shutoff solenoid Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 800
 Del. quantity cm3/1000 strokes : 77.0
 Tolerance cm3/1000 str. +- : 0.5
 Spread cm3/1000 strokes : 3.5
 Shutoff solenoid Volt : 12

IDLE SETTING

Rated speed rpm : 300
 Del. quantity cm3/1000 strokes : 23.0
 Tolerance cm3/1000 str. +- : 2.0
 Shutoff solenoid Volt : 12
 Spread cm3/1000 strokes : 3.5
 Check tolerance cm3/1000S. : 3.5

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1600
 Del. quantity cm3/1000 strokes : 24.0
 Tolerance cm3/1000 str. +- : 3.0

Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 105.0
Tolerance
cm³/1000 str. + : 15.0
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 800
SV travel mm : 0.8
Tolerance mm + : 0.3
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 1400
SV travel mm : 3.3
Tolerance mm + : 0.4
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1400
Supply pump
pressure bar : 7.5
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 800

Rated speed rpm : 500
Supply pump
pressure bar : 3.7
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 1400

Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s + : 41.6

Check tolerance
ccm/10s + : 41.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s + : 22.2

Check tolerance
ccm/10s + : 22.2
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1600
Del. quantity
cm³/1000 strokes : 24.0
Tolerance
cm³/1000 str. + : 3.0
Check tolerance
cm³/1000s. + : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : 57.0
Tolerance
cm³/1000 str. + : 6.0
Check tolerance
cm³/1000s. + : 7.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1680
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000s. + : 1.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 1400
Del. quantity
cm³/1000 strokes : 71.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000s. + : 3.0

Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 68.5
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 77.0
Tolerance
cm³/1000 str. +- : 0.5
Check tolerance
cm³/1000S. +- : 3.0
Shutoff solenoid
Volt : 12

MECHANICAL SHUTOFF

Rated speed rpm : 1400
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 1.5
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 1.5

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 1.5

IDLE DELIVERY

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 8.5
Tolerance
cm³/1000 str. +- : 3.5
Check tolerance
cm³/1000S. +- : 4.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 17.5
Tolerance
cm³/1000 str. +- : 3.5
Check tolerance
cm³/1000S. +- : 5.0
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 250
Del. quantity
cm³/1000 strokes : 50.0
Tolerance
cm³/1000 str. +- : 15.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 150
Del. quantity
cm³/1000 strokes : 115.0
Tolerance
cm³/1000 str. +- : 15.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,3
Tolerance mm +- : +-0,1
Dimension KF mm : KOT
Dimension MS mm : 1,1
Tolerance mm +- : +-0,2

CONTROL LEVER POSITION SET

Control lever
position YA mm : 37,2..39,2

Control lever
position YB mm : 42,7..51,3

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.09.94
Test oil : ISO 4113

Part no. : J 460 484 089
Pump designation : VE4/8F2300R317-7

Customer-spec. information
Customer : RENAULT
Motor : F8Q - 742
Power KW : 47.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 022

Opening pressure
bar : 130
Tolerance bar ± : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1250

Setting mm : 4.3
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250
Supply pump
pressure bar : 4.8
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : 31.5
Tolerance
cm3/1000 str. ± : 0.5
Spread
cm3/1000 strokes : 2.5
Shutoff solenoid
Volt : 12

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 550
Del. quantity
cm3/1000 strokes : 3.0
Tolerance
cm3/1000 str. ± : 2.0
Shutoff solenoid
Volt : 12

IDLE DELIVERY

Rated speed rpm : 410
Del. quantity
cm3/1000 strokes : 11.0
Tolerance
cm3/1000 str. ± : 2.0
Spread
cm3/1000 strokes : 2.5
Shutoff solenoid
Volt : 12

HIGH IDLE SETTING

Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 9.0

Tolerance
cm³/1000 str. +- : 2.0
Shutoff solenoid
Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2450
Del. quantity
cm³/1000 strokes : 26.0
Tolerance
cm³/1000 str. +- : 3.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 55.0
Tolerance
cm³/1000 str. +- : 15.0
Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -8.7
Tolerance
cm³/1000 str. +- : 1.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 str. +- : 0.1
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -0.4
Tolerance
cm³/1000 str. +- : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2000
SV travel mm : 8.0
Tolerance mm +- : 0.4
Check
tolerance mm +- : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 750

SV travel mm : 2.0
Tolerance mm +- : 0.4
Check
tolerance mm +- : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 310

SV travel mm : 1.8
Tolerance mm +- : 1.2
Check
tolerance mm +- : 1.2
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 500

SV travel mm : 3.1
Tolerance mm +- : 1.2
Check
tolerance mm +- : 1.2
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2000
Supply pump
pressure bar : 6.7
Tolerance bar +- : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Supply pump
pressure bar : 3.4
Tolerance bar +- : 0.3

Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2250
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s +- : 41.6

Check tolerance
ccm/10s +- : 41.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s +- : 22.2

Check tolerance
ccm/10s +- : 22.2
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2450
Del. quantity
cm³/1000 strokes : 26.0
Tolerance
cm³/1000 str. +- : 3.0
Check tolerance
cm³/1000s. +- : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2650
Del. quantity
cm³/1000 strokes : 11.0
Check tolerance
cm³/1000s. +- : 5.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2950
Del. quantity
cm³/1000 strokes : 2.5
Tolerance
cm³/1000 str. +- : 2.5
Check tolerance
cm³/1000s. +- : 2.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 2250
Del. quantity
cm³/1000 strokes : 32.5

Tolerance
cm³/1000 str. +- : 1.0
Check tolerance
cm³/1000s. +- : 2.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 1625
Del. quantity
cm³/1000 strokes : 31.2
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000s. +- : 2.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 2000
Del. quantity
cm³/1000 strokes : 31.3
Tolerance
cm³/1000 str. +- : 1.0
Check tolerance
cm³/1000s. +- : 2.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 31.6
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000s. +- : 2.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : 31.5
Tolerance
cm³/1000 str. +- : 0.5
Check tolerance
cm³/1000s. +- : 2.3
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 410
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000s. +- : 1.5

Spread
cm3/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 410
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. +- : 1.5
Spread
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000s. +- : 1.5
Spread
cm3/1000 strokes : 5.0

CHECKING LOAD-DEPENDENT START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : -11.0
Tolerance
cm3/1000 str. +- : 2.0
Check tolerance
cm3/1000s. +- : 2.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : -0.4
Tolerance
cm3/1000 str. +- : 0.1
Check tolerance
cm3/1000s. +- : 0.1
Shutoff solenoid
Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : 5.0
Tolerance
cm3/1000 str. +- : 3.0
Check tolerance
cm3/1000s. +- : 3.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1250
Supply pump
pressure bar : -0.4
Tolerance bar +- : 0.2
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Tolerance mm +- : 0.2
Check
tolerance mm +- : 0.3
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 310
Del. quantity
cm3/1000 strokes : 30.0
Tolerance
cm3/1000 str. +- : 15.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 210
Del. quantity
cm3/1000 strokes : 60.0
Tolerance
cm3/1000 str. +- : 15.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,3
Tolerance mm +- : +-0,1
Dimension KF mm : 5,5
Tolerance mm +- : +-0,2
Dimension MS mm : 1,3
Tolerance mm +- : +-0,2

MICROSWITCH SET

mm : 0,8...3,0
: 7,6..8,4

CONTROL LEVER POSITION SET

Control lever
position YA mm : -

Control lever
position YB mm : 1

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 05.07.95
Test oil : ISO 4113

Part no. : 0 460 484 090
Pump designation : VE4/8F2300R317-8

Customer-spec. information
Customer : RENAULT
Motor : F8Q - 724
Power KW : 47.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 022

Opening pressure
bar : 130
Tolerance bar ± : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1250
Setting mm : 4.3
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250
Supply pump
pressure bar : 4.8
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : 31.5
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 2.5
Shutoff solenoid
Volt : 12

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 3.0
Tolerance
cm³/1000 str. ± : 2.0
Shutoff solenoid
Volt : 12

IDLE DELIVERY

Rated speed rpm : 410
Del. quantity
cm³/1000 strokes : 11.0
Tolerance
cm³/1000 str. ± : 2.0
Spread
cm³/1000 strokes : 2.5
Shutoff solenoid
Volt : 12

HIGH IDLE SETTING

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 9.0

Tolerance
cm³/1000 str. +- : 2.0
Shutoff solenoid
Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2450
Del. quantity
cm³/1000 strokes : 26.0
Tolerance
cm³/1000 str. +- : 3.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 55.0
Tolerance
cm³/1000 str. +- : 15.0
Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -8.7
Tolerance
cm³/1000 str. +- : 1.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 str. +- : 0.1
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -0.4
Tolerance
cm³/1000 str. +- : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2000
SV travel mm : 8.0
Tolerance mm +- : 0.4
Check
tolerance mm +- : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 750

SV travel mm : 2.0
Tolerance mm +- : 0.4
Check
tolerance mm +- : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 310

SV travel mm : 1.8
Tolerance mm +- : 1.2
Check
tolerance mm +- : 1.2
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 500

SV travel mm : 3.1
Tolerance mm +- : 1.2
Check
tolerance mm +- : 1.2
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2000
Supply pump
pressure bar : 6.7
Tolerance bar +- : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Supply pump
pressure bar : 3.4
Tolerance bar +- : 0.3

Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2250
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s + : 41.6

Check tolerance
ccm/10s + : 41.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s + : 22.2

Check tolerance
ccm/10s + : 22.2
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2450
Del. quantity
cm3/1000 strokes : 26.0
Tolerance
cm3/1000 str. + : 3.0
Check tolerance
cm3/1000S. + : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2650
Del. quantity
cm3/1000 strokes : 11.0
Check tolerance
cm3/1000S. + : 5.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2950
Del. quantity
cm3/1000 strokes : 2.5
Tolerance
cm3/1000 str. + : 2.5
Check tolerance
cm3/1000S. + : 2.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 2250
Del. quantity
cm3/1000 strokes : 32.5

Tolerance
cm3/1000 str. + : 1.0
Check tolerance
cm3/1000S. + : 2.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 1625
Del. quantity
cm3/1000 strokes : 31.2
Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000S. + : 2.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 2000
Del. quantity
cm3/1000 strokes : 31.3
Tolerance
cm3/1000 str. + : 1.0
Check tolerance
cm3/1000S. + : 2.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Del. quantity
cm3/1000 strokes : 31.6
Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000S. + : 2.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : 31.5
Tolerance
cm3/1000 str. + : 0.5
Check tolerance
cm3/1000S. + : 2.3
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 410
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000S. + : 1.5

Spread
cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 410
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. + : 1.5
Spread
cm³/1000 strokes : 5.0

CHECKING LOAD-DEPENDENT START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -11.0
Tolerance
cm³/1000 str. + : 2.0
Check tolerance
cm³/1000S. + : 2.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -0.4
Tolerance
cm³/1000 str. + : 0.1
Check tolerance
cm³/1000S. + : 0.1
Shutoff solenoid
Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : 5.0
Tolerance
cm³/1000 str. + : 3.0
Check tolerance
cm³/1000S. + : 3.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1250

Supply pump
pressure bar : -0.4
Tolerance bar + : 0.2
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Tolerance mm + : 0.2
Check
tolerance mm + : 0.3
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 310
Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 str. + : 15.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 210
Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 str. + : 15.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,3
Tolerance mm + : +0,1
Dimension KF mm : 5,5
Tolerance mm + : +0,2
Dimension MS mm : 1,3
Tolerance mm + : +0,2

MICROSWITCH SET

mm : 0,8...3,0
: 7,6...8,4

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.03.95
Test oil : ISO 4113
Part no. : 0 460 484 031
Pump designation : VE4/8F2100R357

Customer-spec. information
Customer : VW
Motor : 028.A 1.9L. 45KW

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 000

Opening pressure
bar : 147
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1250
Setting mm : 3.7
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250
Supply pump
pressure bar : 6.0
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : 36.0
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 2.5
Tolerance
cm³/1000 str. ± : 0.5
Shutoff solenoid
Volt : 12

IDLE DELIVERY

Rated speed rpm : 425
Del. quantity
cm³/1000 strokes : 8.0
Tolerance
cm³/1000 str. ± : 1.0
Spread
cm³/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

HIGH IDLE SETTING

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 8.0
Tolerance
cm³/1000 str. ± : 1.0

Shutoff solenoid
Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2400
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 str. +- : 2.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 str. +- : 25.0
Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -7.5
Tolerance
cm³/1000 str. +- : 1.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 str. +- : 0.1
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -0.4
Tolerance
cm³/1000 str. +- : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1700
SV travel mm : 5.8
Tolerance mm +- : 0.4
Check
tolerance mm +- : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
SV travel mm : 1.3
Tolerance mm +- : 0.4
Check
tolerance mm +- : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 750

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1850
Supply pump
pressure bar : 7.4
Tolerance bar +- : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Supply pump
pressure bar : 4.8
Tolerance bar +- : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 1850
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s +- : 41.6

Check tolerance
ccm/10s +- : 55.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s +- : 22.2

Check tolerance
ccm/10s +- : 34.7

Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2400
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 str. + : 2.0
Check tolerance
cm³/1000S. + : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2650
Del. quantity
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. + : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2250
Del. quantity
cm³/1000 strokes : 23.0
Tolerance
cm³/1000 str. + : 5.0
Check tolerance
cm³/1000S. + : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1850
Del. quantity
cm³/1000 strokes : 33.0
Tolerance
cm³/1000 str. + : 1.0
Check tolerance
cm³/1000S. + : 2.2
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 32.0
Tolerance
cm³/1000 str. + : 2.5
Check tolerance
cm³/1000S. + : 5.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 32.0
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 3.0

Shutoff solenoid
Volt : 12

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : 36.0
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 2.2
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 425
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 425
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5

RESIDUAL QUANTITY

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 3.5
Tolerance
cm³/1000 str. + : 1.0
Check tolerance
cm³/1000S. + : 2.5
Shutoff solenoid
Volt : 12

CHECKING LOAD-DEPENDENT START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1250

Del. quantity
cm³/1000 strokes : -8.0
Tolerance
cm³/1000 str. ± : 3.0
Check tolerance
cm³/1000S. ± : 4.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -0.4
Tolerance
cm³/1000 str. ± : 0.1
Check tolerance
cm³/1000S. ± : 0.1
Shutoff solenoid
Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1250
Supply pump
pressure bar : -0.7
Tolerance bar ± : 0.2
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
SV travel mm : -1.2
Tolerance mm ± : 0.2
Check
tolerance mm ± : 0.5
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 380
Del. quantity
cm³/1000 strokes : 28.0

Tolerance
cm³/1000 str. ± : 10.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 180
Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 str. ± : 25.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,3
Tolerance mm ± : +0,1
Dimension KF mm : 5,3
Tolerance mm ± : +0,2
Dimension MS mm : 1,3
Tolerance mm ± : +0,2

CONTROL LEVER POSITION SET

Control lever
position YA mm : 20,0..22,0

Control lever
position YB mm : 60,5..71,5

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 06.06.95
Test oil : ISO 4113
Part no. : 0 460 484 102
Pump designation : VE4/8F2100R357-1

Customer-spec. information
Customer : VW
Motor : 1.9L T4 SD
Power KW : 45.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holder
assembly : 1 688 901 000

Opening pressure
bar : 147
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1250
Setting mm : 3.7
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250
Supply pump
pressure bar : 6.0
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : 36.0
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 2.5
Tolerance
cm³/1000 str. ± : 0.5
Shutoff solenoid
Volt : 12

IDLE DELIVERY

Rated speed rpm : 425
Del. quantity
cm³/1000 strokes : 8.0
Tolerance
cm³/1000 str. ± : 1.0
Spread
cm³/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

HIGH IDLE SETTING

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 8.0

Tolerance
 cm³/1000 str. + : 1.0
 Shutoff solenoid
 Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2400
 Del. quantity
 cm³/1000 strokes : 12.0
 Tolerance
 cm³/1000 str. + : 2.0
 Shutoff solenoid
 Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 60.0
 Tolerance
 cm³/1000 str. + : 25.0
 Shutoff solenoid
 Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1250
 Del. quantity
 cm³/1000 strokes : -7.5
 Tolerance
 cm³/1000 str. + : 1.0
 Shutoff solenoid
 Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1250
 Del. quantity
 cm³/1000 strokes : -0.2
 Tolerance
 cm³/1000 str. + : 0.1
 Shutoff solenoid
 Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
 Del. quantity
 cm³/1000 strokes : -0.4
 Tolerance
 cm³/1000 str. + : 0.1
 Shutoff solenoid
 Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1700
 SV travel mm : 5.8
 Tolerance mm + : 0.4
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 750

SV travel mm : 1.3
 Tolerance mm + : 0.4
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 750

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1850
 Supply pump
 pressure bar : 7.4
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 750
 Supply pump
 pressure bar : 4.8
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 1850
 Overflow quantity
 ccm/10s : 97.2
 Tolerance
 ccm/10s + : 41.6

Check tolerance
 ccm/10s + : 55.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 750
 Overflow quantity
 ccm/10s : 63.8
 Tolerance
 ccm/10s + : 22.2

Check tolerance
ccm/10s + : 34.7
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2400
Del. quantity
cm3/1000 strokes : 12.0
Tolerance
cm3/1000 str. + : 2.0
Check tolerance
cm3/1000S. + : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2650
Del. quantity
cm3/1000 strokes : 3.0
Check tolerance
cm3/1000S. + : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2250
Del. quantity
cm3/1000 strokes : 23.0
Tolerance
cm3/1000 str. + : 5.0
Check tolerance
cm3/1000S. + : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1850
Del. quantity
cm3/1000 strokes : 33.0
Tolerance
cm3/1000 str. + : 1.0
Check tolerance
cm3/1000S. + : 2.2
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 32.0
Tolerance
cm3/1000 str. + : 2.5
Check tolerance
cm3/1000S. + : 5.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Del. quantity
cm3/1000 strokes : 32.0

Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000S. + : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : 36.0
Tolerance
cm3/1000 str. + : 0.5
Check tolerance
cm3/1000S. + : 2.2
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 425
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000S. + : 1.5
Spread
cm3/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 425
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Spread
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. + : 1.5
Spread
cm3/1000 strokes : 5.0

RESIDUAL QUANTITY

Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 3.5
Tolerance
cm3/1000 str. + : 1.0
Check tolerance
cm3/1000S. + : 2.5
Shutoff solenoid
Volt : 12

CHECKING LOAD-DEPENDENT
START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : -8.0
Tolerance
cm3/1000 str. +- : 3.0
Check tolerance
cm3/1000S. +- : 4.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : -0.4
Tolerance
cm3/1000 str. +- : 0.1
Check tolerance
cm3/1000S. +- : 0.1
Shutoff solenoid
Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. +- : 1.5
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1250
Supply pump
pressure bar : -0.7
Tolerance bar +- : 0.2
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
SV travel mm : -1.2
Tolerance mm +- : 0.2
Check
tolerance mm +- : 0.5

Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 380
Del. quantity
cm3/1000 strokes : 28.0
Tolerance
cm3/1000 str. +- : 10.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 180
Del. quantity
cm3/1000 strokes : 60.0
Tolerance
cm3/1000 str. +- : 25.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,3
Tolerance mm +- : +-0,1
Dimension KF mm : 5,3
Tolerance mm +- : +-0,2
Dimension MS mm : 1,3
Tolerance mm +- : +-0,2

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 20,0..22,0

Control lever
position YB mm : 60,5..71,5

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.06.95
Test oil : ISO 4113

Part no. : 0 460 426 167
Pump designation : VE6/12F1000R369-1

Customer-spec. information
Customer : CDC
Motor : 6BT- 5.9 IND.

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C +- : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar +- : 0.05

Test nozzle holde
assembly : 1 688 901 027

Opening pressure
bar : 250
Tolerance bar +- : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 1,5
Tolerance mm +- : +-0,02
Outlet : 0

Prestroke

(as of UT) mm : 0,2
Tolerance mm +- : +-0,02
Check
tolerance mm +- : +-0,04

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 750
Setting mm : 3.7
Tolerance mm +- : 0.2
Shutoff solenoid
Volt : 24

SUPPLY PUMP PRESSURE

Rated speed rpm : 750
Supply pump
pressure bar : 3.9
Tolerance bar +- : 0.3
Shutoff solenoid
Volt : 24

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 900
Del. quantity
cm3/1000 strokes : 74.9
Tolerance
cm3/1000 str. +- : 0.5
Spread
cm3/1000 strokes : 4.0
Shutoff solenoid
Volt : 24

IDLE SETTING

Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 7.0
Tolerance
cm3/1000 str. +- : 3.0
Shutoff solenoid
Volt : 24
Spread
cm3/1000 strokes : 5.5
Check tolerance
cm3/1000S. : 7.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1045
 Del. quantity
 cm³/1000 strokes : 63.0
 Tolerance
 cm³/1000 str. ± : 3.0
 Shutoff solenoid
 Volt : 24

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 100.0
 Tolerance
 cm³/1000 str. ± : 30.0
 Shutoff solenoid
 Volt : 24

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1000
 SV travel mm : 5.2
 Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.7
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 500
 SV travel mm : 1.8
 Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.7
 Shutoff solenoid
 Volt : 24

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1000
 Supply pump
 pressure bar : 4.9
 Tolerance bar ± : 0.3
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 500
 Supply pump
 pressure bar : 2.9
 Tolerance bar ± : 0.3

Shutoff solenoid
 Volt : 24

OVERFLOW QUANTITY

Rated speed rpm : 1000
 Overflow quantity
 ccm/10s : 97.2
 Tolerance
 ccm/10s ± : 41.6

Check tolerance
 ccm/10s ± : 41.6
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 500
 Overflow quantity
 ccm/10s : 63.8
 Tolerance
 ccm/10s ± : 22.2

Check tolerance
 ccm/10s ± : 22.2
 Shutoff solenoid
 Volt : 24

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1045
 Del. quantity
 cm³/1000 strokes : 63.0
 Tolerance
 cm³/1000 str. ± : 3.0
 Check tolerance
 cm³/1000s. ± : 6.0
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 1100
 Del. quantity
 cm³/1000 strokes : 35.0
 Check tolerance
 cm³/1000s. ± : 10.0
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 1170
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. ± : 1.5
 Check tolerance
 cm³/1000s. ± : 1.5
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 1000
 Del. quantity
 cm³/1000 strokes : 73.5

Tolerance
 cm3/1000 str. + : 1.5
 Check tolerance
 cm3/1000S. + : 3.0
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 750
 Del. quantity
 cm3/1000 strokes : 75.9
 Tolerance
 cm3/1000 str. + : 1.5
 Check tolerance
 cm3/1000S. + : 3.5
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 500
 Del. quantity
 cm3/1000 strokes : 62.7
 Tolerance
 cm3/1000 str. + : 4.0
 Check tolerance
 cm3/1000S. + : 6.0
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 900
 Del. quantity
 cm3/1000 strokes : 74.9
 Tolerance
 cm3/1000 str. + : 0.5
 Check tolerance
 cm3/1000S. + : 3.0
 Shutoff solenoid
 Volt : 24

MECHANICAL SHUTOFF

Rated speed rpm : 1000
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. + : 1.5
 Spread
 cm3/1000 strokes : 5.0
 Check tolerance
 cm3/1000S. + : 1.5
 Spread
 cm3/1000 strokes : 5.0
 Shutoff solenoid
 Volt : 24

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 500

Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. + : 1.5
 Check tolerance
 cm3/1000S. + : 1.5
 Spread
 cm3/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 500
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. + : 1.5
 Spread
 cm3/1000 strokes : 5.0
 Check tolerance
 cm3/1000S. + : 1.5
 Spread
 cm3/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 540
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. + : 1.5
 Check tolerance
 cm3/1000S. + : 1.5
 Shutoff solenoid
 Volt : 24

START TRANSITION

Rated speed rpm : 250
 Del. quantity
 cm3/1000 strokes : 45.0
 Tolerance
 cm3/1000 str. + : 15.0
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 130
 Del. quantity
 cm3/1000 strokes : 110.0
 Tolerance
 cm3/1000 str. + : 30.0
 Shutoff solenoid
 Volt : 24

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension KF mm : 5,2
Tolerance mm \pm : $\pm 0,2$
Dimension MS mm : 1,0
Tolerance mm \pm : $\pm 0,02$

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 34,8..38,8

Control lever
position YB mm : 35,7..41,3

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 26.09.95
Test oil : ISO 4113

Part no. : 0 460 416 067
Pump designation : VE6/11F1150R394

Customer-spec. information

Customer : IVECO-FIAT
Motor : 8065.25.220
Power KW : 78.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C +- : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar +- : 0.05

Test nozzle holde
assembly : 1 688 901 020

Opening pressure
bar : 172
Tolerance bar +- : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 700
Aneroid pressure
hPa : 1000
Setting mm : 2.4
Tolerance mm +- : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 700
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 4.6
Tolerance bar +- : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000
Del. quantity
cm3/1000 strokes : 84.0
Tolerance
cm3/1000 str. +- : 0.5
Spread
cm3/1000 strokes : 3.5
Check tolerance
cm3/1000S. : 4.0
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 74.5
Tolerance
cm3/1000 str. +- : 0.5
Shutoff solenoid
Volt : 12
Check tolerance
cm3/1000S. : 4.0

IDLE SETTING

Rated speed rpm : 325
Del. quantity
cm3/1000 strokes : 18.0
Tolerance
cm3/1000 str. +- : 2.0
Shutoff solenoid
Volt : 12

Spread
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000s. : 4.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1260
Pressure hPa : 1000
Del. quantity
cm³/1000 strokes : 50.0
Tolerance
cm³/1000 str. ± : 3.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 110.0
Tolerance
cm³/1000 str. ± : 25.0
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000
SV travel mm : 3.5
Tolerance mm ± : 0.4
Check
tolerance mm ± : 0.9
Shutoff solenoid
Volt : 12

Rated speed rpm : 550
Aneroid pressure
hPa : 1000

SV travel mm : 1.2
Tolerance mm ± : 0.4
Check
tolerance mm ± : 0.9
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1150
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 6.4
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 550
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 3.9
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 500
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s ± : 22.2

Check tolerance
ccm/10s ± : 22.2
Shutoff solenoid
Volt : 12

Rated speed rpm : 1150
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s ± : 41.6

Check tolerance
ccm/10s ± : 41.6
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1260
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 50.0
Tolerance
cm³/1000 str. ± : 3.0
Check tolerance
cm³/1000s. ± : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1280

Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 34.5
Check tolerance
cm³/1000S. + : 5.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1350
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Aneroid pressure
hPa : 350

LDA/
HBA stroke mm : 4.7
Del. quantity
cm³/1000 strokes : 79.5
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1150
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 81.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 3.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 650
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 89.0
Tolerance
cm³/1000 str. + : 2.0
Check tolerance
cm³/1000S. + : 3.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 86.5
Tolerance
cm³/1000 str. + : 2.0
Check tolerance
cm³/1000S. + : 3.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 84.0
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 3.5
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 325
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5
Spread
cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 325
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. + : 1.5
Spread
cm³/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 420
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5

Check tolerance
cm³/1000S. \pm : 1.5
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 250
Del. quantity
cm³/1000 strokes : 70.0
Tolerance
cm³/1000 str. \pm : 10.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 150
Del. quantity
cm³/1000 strokes : 110.0
Tolerance
cm³/1000 str. \pm : 25.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/
HBA stroke mm : 4.7
Dimension K mm : 3,3
Tolerance mm \pm : $\pm 0,1$
Dimension MS mm : 1,1
Tolerance mm \pm : $\pm 0,2$

CONTROL LEVER POSITION SET

Control lever
position YA mm : 34,9..36,9

Control lever
position YB mm : 48,2..53,8

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 13.11.95
Test oil : ISO 4113
Part no. : 0 460 426 179
Pump designation : VE6/12F1250R406

Customer-spec. information
Customer : PERKINS
Motor : Q20 Phaser T6.60

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 027

Opening pressure
bar : 250
Tolerance bar ± : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

BEGINNING OF DELIVERY

Prestroke

(as of UT) mm : 0,25
Tolerance mm ± : ±0,02
Check
tolerance mm ± : ±0,04

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1000
Aneroid pressure
hPa : 1500

Setting mm : 1.6
Tolerance mm ± : 0.2

SUPPLY PUMP PRESSURE

Rated speed rpm : 1000
Aneroid pressure
hPa : 1500
Supply pump
pressure bar : 6.2
Tolerance bar ± : 0.3

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 700
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 84.5
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 5.0

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 64.5
Tolerance
cm³/1000 str. ± : 0.5
Check tolerance
cm³/1000S. : 5.0

IDLE SETTING

Rated speed rpm : 325
Del. quantity
cm³/1000 strokes : 10.0
Tolerance
cm³/1000 str. ± : 2.0
Spread
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 5.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1400
Pressure hPa : 1500
Del. quantity
cm³/1000 strokes : 40.0
Tolerance
cm³/1000 str. ± : 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 130.0
Tolerance
cm³/1000 str. ± : 30.0

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1100
Aneroid pressure
hPa : 1500
SV travel mm : 2.3
Tolerance mm ± : 0.4
Check
tolerance mm ± : 0.7

Rated speed rpm : 900
Aneroid pressure
hPa : 1500
SV travel mm : 0.8
Tolerance mm ± : 0.4
Check
tolerance mm ± : 0.7

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1200
Aneroid pressure
hPa : 1500
Supply pump
pressure bar : 7.2
Tolerance bar ± : 0.3

Rated speed rpm : 700

Aneroid pressure
hPa : 1500
Supply pump
pressure bar : 5.0
Tolerance bar ± : 0.3

OVERFLOW QUANTITY

Rated speed rpm : 500
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s ± : 22.2

Check tolerance
ccm/10s ± : 22.2

Rated speed rpm : 1200
Aneroid pressure
hPa : 1500
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s ± : 41.6

Check tolerance
ccm/10s ± : 41.6

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1400
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 40.0
Tolerance
cm³/1000 str. ± : 3.0
Check tolerance
cm³/1000S. ± : 6.0

Rated speed rpm : 1480
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. ± : 3.5

Rated speed rpm : 1350
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 65.0
Tolerance
cm³/1000 str. ± : 8.0
Check tolerance
cm³/1000S. ± : 10.0

Rated speed rpm : 700

Aneroid pressure
hPa : 700
Del. quantity
cm³/1000 strokes : 79.0
Tolerance
cm³/1000 str. +- : 0.5
Check tolerance
cm³/1000S. +- : 3.5

Rated speed rpm : 1200
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 89.5
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 3.5

Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 60.5
Tolerance
cm³/1000 str. +- : 2.5
Check tolerance
cm³/1000S. +- : 4.0

Rated speed rpm : 1000
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 83.5
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 3.5

Rated speed rpm : 700
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 84.5
Tolerance
cm³/1000 str. +- : 0.5
Check tolerance
cm³/1000S. +- : 3.5

MECHANICAL SHUTOFF

Rated speed rpm : 1200
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 1.5

IDLE DELIVERY

Rated speed rpm : 420
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 1.5

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 5.0
Tolerance
cm³/1000 str. +- : 3.0
Check tolerance
cm³/1000S. +- : 5.0

START TRANSITION

Rated speed rpm : 230
Del. quantity
cm³/1000 strokes : 70.0
Tolerance
cm³/1000 str. +- : 20.0

Rated speed rpm : 130
Del. quantity
cm³/1000 strokes : 140.0
Tolerance
cm³/1000 str. +- : 30.0

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension KF mm : 6,0
Tolerance mm +- : +-0,02
MS1 dimension mm : 2,0
Tolerance mm +- : +0,15/-0,1

CONTROL LEVER POSITION SET

Control lever
position YA mm : 37,2..39,2

Control lever
position YB mm : 52,4..60,6

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 05.04.95
Test oil : ISO 4113

Part no. : 0 460 424 075
Pump designation : VE4/12F1350R407

Customer-spec. information

Customer : IVECO-FIAT
Motor : 8040.25.4000 TC
Power KW : 85.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holder
assembly : 1 688 901 027

Opening pressure
bar : 250
Tolerance bar ± : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

BEGINNING OF DELIVERY

Prestroke

F06

(as of UT) mm : 0,3
Tolerance mm ± : ±0,04
Check
tolerance mm ± : ±0,06

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000

Setting mm : 1.6
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 24

SUPPLY PUMP PRESSURE

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 6.3
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 24

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 700
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 79.5
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000s. : 5.0
Shutoff solenoid
Volt : 24

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 46.0
Tolerance
cm³/1000 str. ± : 0.5
Shutoff solenoid
Volt : 24
Check tolerance
cm³/1000s. : 5.0

IDLE SETTING

Rated speed rpm	:	350
Del. quantity		
cm ³ /1000 strokes	:	15.0
Tolerance		
cm ³ /1000 str. +	:	2.0
Shutoff solenoid		
Volt	:	24
Spread		
cm ³ /1000 strokes	:	3.5
Check tolerance		
cm ³ /1000s.	:	5.0

FULL-LOAD SPEED REGULATION

Rated speed rpm	:	1525
Pressure hPa	:	1000
Del. quantity		
cm ³ /1000 strokes	:	33.0
Tolerance		
cm ³ /1000 str. +	:	3.0
Shutoff solenoid		
Volt	:	24

STARTING FUEL DELIVERY

Rated speed rpm	:	100
Del. quantity		
cm ³ /1000 strokes	:	95.0
Tolerance		
cm ³ /1000 str. +	:	30.0
Shutoff solenoid		
Volt	:	24

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm	:	1100
Aneroid pressure		
hPa	:	1000

SV travel mm	:	2.6
Tolerance mm +	:	0.4
Check		
tolerance mm +	:	0.9
Shutoff solenoid		
Volt	:	24

Rated speed rpm	:	1350
Aneroid pressure		
hPa	:	1000

SV travel mm	:	4.1
Tolerance mm +	:	0.4
Check		
tolerance mm +	:	0.9
Shutoff solenoid		
Volt	:	24

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm	:	1350
Aneroid pressure		
hPa	:	1000
Supply pump		
pressure bar	:	8.0
Tolerance bar +	:	0.3
Shutoff solenoid		
Volt	:	24

Rated speed rpm	:	600
Aneroid pressure		
hPa	:	1000
Supply pump		
pressure bar	:	4.0
Tolerance bar +	:	0.3
Shutoff solenoid		
Volt	:	24

OVERFLOW QUANTITY

Rated speed rpm	:	1350
Aneroid pressure		
hPa	:	1000
Overflow quantity		
ccm/10s	:	97.2
Tolerance		
ccm/10s +	:	41.6

Check tolerance		
ccm/10s +	:	41.6
Shutoff solenoid		
Volt	:	24

Rated speed rpm	:	600
Aneroid pressure		
hPa	:	1000
Overflow quantity		
ccm/10s	:	63.8
Tolerance		
ccm/10s +	:	22.2

Check tolerance		
ccm/10s +	:	22.2
Shutoff solenoid		
Volt	:	24

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm	:	1525
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Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 33.0
Tolerance
cm³/1000 str. + : 3.0
Check tolerance
cm³/1000S. + : 6.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 1475
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 50.0
Tolerance
cm³/1000 str. + : 8.0
Check tolerance
cm³/1000S. + : 10.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 1610
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 600
Aneroid pressure
hPa : 375

LDA/
HBA stroke mm : 7.5
Del. quantity
cm³/1000 strokes : 64.5
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 4.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 1350
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 71.0
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 3.5

Shutoff solenoid
Volt : 24

Rated speed rpm : 1200
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 74.0
Tolerance
cm³/1000 str. + : 2.0
Check tolerance
cm³/1000S. + : 3.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 600
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 84.5
Tolerance
cm³/1000 str. + : 2.0
Check tolerance
cm³/1000S. + : 3.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 700
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 79.5
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 3.5
Shutoff solenoid
Volt : 24

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5
Spread
cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 1.5

Tolerance
cm3/1000 str. +- : 1.5
Spread
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. +- : 1.5
Spread
cm3/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 475
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. +- : 1.5
Shutoff solenoid
Volt : 24

START TRANSITION

Rated speed rpm : 250
Del. quantity
cm3/1000 strokes : 55.0
Tolerance
cm3/1000 str. +- : 10.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 130
Del. quantity
cm3/1000 strokes : 95.0
Tolerance
cm3/1000 str. +- : 30.0
Shutoff solenoid
Volt : 24

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/
HBA stroke mm : 7.5
Dimension KF mm : 5,4
Tolerance mm +- : +-0,2
MS1 dimension mm : 1,46
Tolerance mm +- : +0,15/-0,1
KSB travel mm : 10,0

CONTROL LEVER POSITION SET

Control lever
position YA mm : 37,9..39,9

Control lever
position YB mm : 42,0..50,0

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 05.04.95
Test oil : ISO 4113

Part no. : 0 460 424 076
Pump designation : VE4/12F1350R407-1

Customer-spec. information

Customer : IVECO-FIAT
Motor : 8040.45.4000 TCA
Power KW : 102.0

TEST BENCH REQUIREMENTS

Calibrating-oil return

temperature °C : 45
Tolerance °C ± : 1

Overflow restriction mm : 0.75

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holder assembly : 1 688 901 027

Opening pressure bar : 250
Tolerance bar ± : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1000
Aneroid pressure hPa : 1000
Setting mm : 1.6
Tolerance mm ± : 0.2
Shutoff solenoid Volt : 24

SUPPLY PUMP PRESSURE

Rated speed rpm : 1000
Aneroid pressure hPa : 1000
Supply pump pressure bar : 6.5
Tolerance bar ± : 0.3
Shutoff solenoid Volt : 24

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 700
Aneroid pressure hPa : 1000
Del. quantity cm3/1000 strokes : 72.5
Tolerance cm3/1000 str. ± : 0.5
Spread cm3/1000 strokes : 3.5
Check tolerance cm3/1000S. : 5.0
Shutoff solenoid Volt : 24

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 600
Del. quantity cm3/1000 strokes : 43.0
Tolerance cm3/1000 str. ± : 0.5
Shutoff solenoid Volt : 24
Check tolerance cm3/1000S. : 5.0

IDLE SETTING

Rated speed rpm : 350
Del. quantity cm3/1000 strokes : 15.0
Tolerance cm3/1000 str. ± : 2.0
Shutoff solenoid Volt : 24

Spread
 cm³/1000 strokes : 3.5
 Check tolerance
 cm³/1000s. : 5.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1525
 Pressure hPa : 1000
 Del. quantity
 cm³/1000 strokes : 26.0
 Tolerance
 cm³/1000 str. + : 3.0
 Shutoff solenoid
 Volt : 24

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 95.0
 Tolerance
 cm³/1000 str. + : 30.0
 Shutoff solenoid
 Volt : 24

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1100
 Aneroid pressure
 hPa : 1000
 SV travel mm : 2.6
 Tolerance mm + : 0.4
 Check
 tolerance mm + : 0.9
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 1350
 Aneroid pressure
 hPa : 1000
 SV travel mm : 4.1
 Tolerance mm + : 0.4
 Check
 tolerance mm + : 0.9
 Shutoff solenoid
 Volt : 24

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1350
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 7.9
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 600
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 4.8
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 24

OVERFLOW QUANTITY

Rated speed rpm : 1350
 Aneroid pressure
 hPa : 1000
 Overflow quantity
 ccm/10s : 138.8
 Tolerance
 ccm/10s + : 41.6

Check tolerance
 ccm/10s + : 41.6
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 600
 Aneroid pressure
 hPa : 1000
 Overflow quantity
 ccm/10s : 97.2
 Tolerance
 ccm/10s + : 22.2

Check tolerance
 ccm/10s + : 22.2
 Shutoff solenoid
 Volt : 24

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1525
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 26.0
 Tolerance
 cm³/1000 str. + : 3.0
 Check tolerance
 cm³/1000s. + : 6.0
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 1450
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 53.0
 Tolerance
 cm³/1000 str. + : 8.0
 Check tolerance
 cm³/1000S. + : 10.0
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 1600
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000S. + : 1.5
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 600
 Aneroid pressure
 hPa : 510

LDA/
 HBA stroke mm : 6.9
 Del. quantity
 cm³/1000 strokes : 62.5
 Tolerance
 cm³/1000 str. + : 0.5
 Check tolerance
 cm³/1000S. + : 4.0
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 1350
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 65.0
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000S. + : 3.5
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 1200
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 65.5
 Tolerance
 cm³/1000 str. + : 2.0

Check tolerance
 cm³/1000S. + : 3.5
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 600
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 76.5
 Tolerance
 cm³/1000 str. + : 2.0
 Check tolerance
 cm³/1000S. + : 3.5
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 700
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 72.5
 Tolerance
 cm³/1000 str. + : 0.5
 Check tolerance
 cm³/1000S. + : 3.5
 Shutoff solenoid
 Volt : 24

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 350
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000S. + : 1.5
 Spread
 cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 350
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. + : 1.5
 Spread
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. + : 1.5
 Spread
 cm³/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 475
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. \pm : 1.5
Check tolerance
cm³/1000s. \pm : 1.5
Shutoff solenoid
Volt : 24

End of test-specification sheet

START TRANSITION

Rated speed rpm : 250
Del. quantity
cm³/1000 strokes : 40.0
Tolerance
cm³/1000 str. \pm : 10.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 130
Del. quantity
cm³/1000 strokes : 95.0
Tolerance
cm³/1000 str. \pm : 30.0
Shutoff solenoid
Volt : 24

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/
HBA stroke mm : 6.9
Dimension K mm : 3,6
Tolerance mm \pm : $\pm 0,1$
Dimension KF mm : 6,4
Tolerance mm \pm : $\pm 0,2$
MS1 dimension mm : 1,75
Tolerance mm \pm : $\pm 0,15/-0,1$

CONTROL LEVER POSITION SET

Control lever
position YA mm : 37,9..39,9

Control lever
position YB mm : 39,0..47,0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 05.04.95
Test oil : ISO 4113

Part no. : 0 460 424 075A
Pump designation : VE4/12F1350R407A

Customer-spec. information
Customer : IVECO-FIAT
Motor : 8040.25X.4000

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C +- : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar +- : 0.05

Test nozzle holde
assembly : 1 688 901 027

Opening pressure
bar : 250
Tolerance bar +- : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000
Setting mm : 1.6
Tolerance mm +- : 0.2
Shutoff solenoid
Volt : 24

SUPPLY PUMP PRESSURE

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 6.3
Tolerance bar +- : 0.3
Shutoff solenoid
Volt : 24

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 700
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 70.0
Tolerance
cm³/1000 str. +- : 0.5
Spread
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.0
Shutoff solenoid
Volt : 24

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 46.0
Tolerance
cm³/1000 str. +- : 0.5
Shutoff solenoid
Volt : 24
Check tolerance
cm³/1000S. : 5.0

IDLE SETTING

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 15.0
Tolerance
cm³/1000 str. +- : 2.0
Shutoff solenoid
Volt : 24
Spread
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000s. : 5.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1525
Pressure hPa : 1000
Del. quantity
cm³/1000 strokes : 33.0
Tolerance
cm³/1000 str. +- : 3.0
Shutoff solenoid
Volt : 24

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 95.0
Tolerance
cm³/1000 str. +- : 30.0
Shutoff solenoid
Volt : 24

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1100
Aneroid pressure
hPa : 1000
SV travel mm : 2.6
Tolerance mm +- : 0.4
Check
tolerance mm +- : 0.9
Shutoff solenoid
Volt : 24

Rated speed rpm : 1350
Aneroid pressure
hPa : 1000

SV travel mm : 4.1
Tolerance mm +- : 0.4
Check
tolerance mm +- : 0.9
Shutoff solenoid
Volt : 24

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1350

Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 8.0
Tolerance bar +- : 0.3
Shutoff solenoid
Volt : 24

Rated speed rpm : 600
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 4.0
Tolerance bar +- : 0.3
Shutoff solenoid
Volt : 24

OVERFLOW QUANTITY

Rated speed rpm : 1350
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s +- : 41.6

Check tolerance
ccm/10s +- : 41.6
Shutoff solenoid
Volt : 24

Rated speed rpm : 600
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s +- : 22.2

Check tolerance
ccm/10s +- : 22.2
Shutoff solenoid
Volt : 24

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1525
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 33.0
Tolerance
cm³/1000 str. +- : 3.0
Check tolerance
cm³/1000s. +- : 6.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 1475

Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 50.0
Tolerance
cm³/1000 str. ± : 4.0
Check tolerance
cm³/1000S. ± : 10.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 1610
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 600
Aneroid pressure
hPa : 375

LDA/
HBA stroke mm : 6.0
Del. quantity
cm³/1000 strokes : 64.5
Tolerance
cm³/1000 str. ± : 0.5
Check tolerance
cm³/1000S. ± : 4.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 1350
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 62.0
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 3.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 1200
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 65.0
Tolerance
cm³/1000 str. ± : 2.0
Check tolerance
cm³/1000S. ± : 3.5

Shutoff solenoid
Volt : 24

Rated speed rpm : 600
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 75.5
Tolerance
cm³/1000 str. ± : 2.0
Check tolerance
cm³/1000S. ± : 3.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 700
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 70.0
Tolerance
cm³/1000 str. ± : 0.5
Check tolerance
cm³/1000S. ± : 3.5
Shutoff solenoid
Volt : 24

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5
Spread
cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. ± : 1.5
Spread
cm³/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 475

Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 1.5
Shutoff solenoid
Volt : 24

End of test-specification sheet

START TRANSITION

Rated speed rpm : 250
Del. quantity
cm³/1000 strokes : 55.0
Tolerance
cm³/1000 str. +- : 10.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 130
Del. quantity
cm³/1000 strokes : 95.0
Tolerance
cm³/1000 str. +- : 30.0
Shutoff solenoid
Volt : 24

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/
HBA stroke mm : 6.0
Dimension K mm : 3,6
Tolerance mm +- : +-0,1
Dimension KF mm : 6,4
Tolerance mm +- : +-0,2
MS1 dimension mm : 1,75
Tolerance mm +- : +0,15/-0,1

CONTROL LEVER POSITION SET

Control lever
position YA mm : 37,9..39,9

Control lever
position YB mm : 42,0..50,0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 26.07.94
Test oil : ISO 4113

Part no. : 0 460 494 271
Pump designation : VE4/9F2200R412

Customer-spec. information

Customer : NISSAN-MISA
Motor : LD 20 II-E (PF)
Power KW : 46.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 022

Opening pressure
bar : 130
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

F18

Plunger stroke mm : 1,0
Tolerance mm ± : ±0,02
Outlet : C

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1200

Setting mm : 3.5
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1200
Supply pump
pressure bar : 5.4
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 2200
Del. quantity
cm3/1000 strokes : 33.0
Tolerance
cm3/1000 str. ± : 0.5
Spread
cm3/1000 strokes : 2.5
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 3.0
Tolerance
cm3/1000 str. ± : 2.0
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

IDLE DELIVERY

Rated speed rpm : 350
 Del. quantity
 cm³/1000 strokes : 9.5
 Tolerance
 cm³/1000 str. + : 2.0
 Spread
 cm³/1000 strokes : 2.5
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

HIGH IDLE SETTING

Rated speed rpm : 500
 Del. quantity
 cm³/1000 strokes : 9.0
 Tolerance
 cm³/1000 str. + : 2.0
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2600
 Del. quantity
 cm³/1000 strokes : 15.0
 Tolerance
 cm³/1000 str. + : 3.0
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

SET GRADUATED STARTING DELIVERY CONTROL LEVER, IDLE STOP

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 50.0
 Tolerance
 cm³/1000 str. + : 2.0
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 900
 Del. quantity
 cm³/1000 strokes : -9.0

Tolerance
 cm³/1000 str. + : 1.0
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 900
 Del. quantity
 cm³/1000 strokes : -0.2
 Tolerance
 cm³/1000 str. + : 0.1
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 900
 Del. quantity
 cm³/1000 strokes : -0.8
 Tolerance
 cm³/1000 str. + : 0.1
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1800
 SV travel mm : 6.4
 Tolerance mm + : 0.4
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12
 Rated speed rpm : 900
 SV travel mm : 1.9
 Tolerance mm + : 0.4
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12
 Rated speed rpm : 2200

SV travel mm : 8.1
 Tolerance mm +- : 0.4
 Check
 tolerance mm +- : 0.5
 Shutoff solenoid
 Volt : 12

KSB/AFB Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1800
 Supply pump
 pressure bar : 7.1
 Tolerance bar +- : 0.3
 Shutoff solenoid
 Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 900
 Supply pump
 pressure bar : 4.5
 Tolerance bar +- : 0.3
 Shutoff solenoid
 Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 2200
 Supply pump
 pressure bar : 8.2
 Tolerance bar +- : 0.3
 Shutoff solenoid
 Volt : 12

KSB/AFB Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2200
 Overflow quantity
 ccm/10s : 97.2
 Tolerance
 ccm/10s +- : 41.6

Check tolerance
 ccm/10s +- : 41.6
 Shutoff solenoid
 Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 600
 Overflow quantity
 ccm/10s : 63.8
 Tolerance
 ccm/10s +- : 22.2

Check tolerance
 ccm/10s +- : 22.2
 Shutoff solenoid
 Volt : 12

KSB/AFB Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2600
 Del. quantity
 cm3/1000 strokes : 15.0
 Tolerance
 cm3/1000 str. +- : 3.0
 Check tolerance
 cm3/1000s. +- : 4.5
 Shutoff solenoid
 Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 2350
 Del. quantity
 cm3/1000 strokes : 30.0
 Tolerance
 cm3/1000 str. +- : 4.0
 Check tolerance
 cm3/1000s. +- : 5.5
 Shutoff solenoid
 Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 2950
 Del. quantity
 cm3/1000 strokes : 2.5
 Tolerance
 cm3/1000 str. +- : 2.5
 Check tolerance
 cm3/1000s. +- : 2.5
 Shutoff solenoid
 Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 900
 Del. quantity
 cm3/1000 strokes : 30.4
 Tolerance
 cm3/1000 str. +- : 1.5
 Check tolerance
 cm3/1000s. +- : 2.5
 Shutoff solenoid
 Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 1200

Del. quantity	
cm3/1000 strokes :	32.5
Tolerance	
cm3/1000 str. +- :	1.5
Check tolerance	
cm3/1000S. +- :	2.5
Shutoff solenoid	
Volt :	12
KSB/AFB Volt :	12
Rated speed rpm :	1800
Del. quantity	
cm3/1000 strokes :	32.6
Tolerance	
cm3/1000 str. +- :	1.0
Check tolerance	
cm3/1000S. +- :	2.5
Shutoff solenoid	
Volt :	12
KSB/AFB Volt :	12
Rated speed rpm :	600
Del. quantity	
cm3/1000 strokes :	31.1
Tolerance	
cm3/1000 str. +- :	1.5
Check tolerance	
cm3/1000S. +- :	2.5
Shutoff solenoid	
Volt :	12
KSB/AFB volt :	12
Rated speed rpm :	2200
Del. quantity	
cm3/1000 strokes :	33.0
Tolerance	
cm3/1000 str. +- :	0.5
Check tolerance	
cm3/1000S. +- :	1.3
Shutoff solenoid	
Volt :	12

MECHANICAL SHUTOFF

Rated speed rpm :	2200
Del. quantity	
cm3/1000 strokes :	1.5
Tolerance	
cm3/1000 str. +- :	1.5
Spread	
cm3/1000 strokes :	5.0
Check tolerance	
cm3/1000S. +- :	1.5
Spread	
cm3/1000 strokes :	5.0

Shutoff solenoid	
Volt :	12
KSB/AFB Volt :	12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm :	350
Del. quantity	
cm3/1000 strokes :	1.5
Tolerance	
cm3/1000 str. +- :	1.5
Check tolerance	
cm3/1000S. +- :	1.5
Spread	
cm3/1000 strokes :	5.0
KSB/AFB Volt :	12

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm :	350
Del. quantity	
cm3/1000 strokes :	1.5
Tolerance	
cm3/1000 str. +- :	1.5
Spread	
cm3/1000 strokes :	5.0
Check tolerance	
cm3/1000S. +- :	1.5
Spread	
cm3/1000 strokes :	5.0
KSB/AFB Volt :	12

CHECKING LOAD-DEPENDENT START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm :	900
Del. quantity	
cm3/1000 strokes :	-10.6
Tolerance	
cm3/1000 str. +- :	2.0
Check tolerance	
cm3/1000S. +- :	2.0
Shutoff solenoid	
Volt :	12
KSB/AFB Volt :	12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 900
 Del. quantity
 cm3/1000 strokes : -0.8
 Tolerance
 cm3/1000 str. + : 0.1
 Check tolerance
 cm3/1000S. + : 0.1
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 900
 Del. quantity
 cm3/1000 strokes : 5.0
 Tolerance
 cm3/1000 str. + : 3.0
 Check tolerance
 cm3/1000S. + : 3.0
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 900
 SV travel mm : -0.8
 Tolerance mm + : 0.5
 Check
 tolerance mm + : 0.5
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

START TRANSITION

Rated speed rpm : 340
 Del. quantity
 cm3/1000 strokes : 35.0
 Tolerance
 cm3/1000 str. + : 10.0
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

Rated speed rpm : 210
 Del. quantity
 cm3/1000 strokes : 55.0
 Tolerance
 cm3/1000 str. + : 10.0

Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,3
 Tolerance mm + : +0,1
 Dimension KF mm : 5,8
 Tolerance mm + : +0,2
 Dimension MS mm : 1,2
 Tolerance mm + : +0,2
 KSB travel mm : 6,0
 TLA travel mm : 3,7

CONTROL LEVER POSITION SET

Control lever
 position YA mm : 30,8..34,8

Control lever
 position YB mm : 67,4..78,6

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.04.94
Test oil : ISO 4113

Part no. : 0 460 494 299
Pump designation : VE4/9F2350R452

Customer-spec. information
Customer : RENAULT
Motor : J8S - 784

TEST BENCH REQUIREMENTS

Inlet press. bar : 0.35
Tolerance bar \pm : 0.05

Test nozzle holder assembly : 1 688 901 022

Opening pressure bar : 130
Tolerance bar \pm : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1125

Setting mm : 2.8
Tolerance mm \pm : 0.2
Shutoff solenoid Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1125
Supply pump pressure bar : 4.5
Tolerance bar \pm : 0.3
Shutoff solenoid Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1125
Del. quantity cm³/1000 strokes : 36.7
Tolerance cm³/1000 str. \pm : 0.5
Spread cm³/1000 strokes : 2.5
Shutoff solenoid Volt : 12

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 550
Del. quantity cm³/1000 strokes : 6.0
Tolerance cm³/1000 str. \pm : 2.0
Shutoff solenoid Volt : 12

IDLE DELIVERY

Rated speed rpm : 425
Del. quantity cm³/1000 strokes : 16.0
Tolerance cm³/1000 str. \pm : 2.0
Spread cm³/1000 strokes : 2.5
Shutoff solenoid Volt : 12

HIGH IDLE SETTING

Rated speed rpm : 500
Del. quantity cm³/1000 strokes : 11.5
Tolerance cm³/1000 str. \pm : 2.0
Shutoff solenoid Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2500
Del. quantity cm³/1000 strokes : 23.0

Tolerance
 cm³/1000 str. ± : 3.0
 Shutoff solenoid
 Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 72.0
 Tolerance
 cm³/1000 str. ± : 20.0
 Shutoff solenoid
 Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1125
 Del. quantity
 cm³/1000 strokes : -11.0
 Tolerance
 cm³/1000 str. ± : 1.0
 Shutoff solenoid
 Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1125
 Del. quantity
 cm³/1000 strokes : -0.2
 Tolerance
 cm³/1000 str. ± : 0.1
 Shutoff solenoid
 Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1125
 Del. quantity
 cm³/1000 strokes : -0.6
 Tolerance
 cm³/1000 str. ± : 0.1
 Shutoff solenoid
 Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2000
 SV travel mm : 7.5
 Tolerance mm ± : 0.4

Check
 tolerance mm ± : 0.7
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 800

SV travel mm : 1.1
 Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.7
 Shutoff solenoid
 Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2000
 Supply pump
 pressure bar : 6.8
 Tolerance bar ± : 0.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 800
 Supply pump
 pressure bar : 3.4
 Tolerance bar ± : 0.3
 Shutoff solenoid
 Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2250
 Overflow quantity
 ccm/10s : 97.2
 Tolerance
 ccm/10s ± : 41.6

Check tolerance
 ccm/10s ± : 41.6
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 800
 Overflow quantity
 ccm/10s : 63.8
 Tolerance
 ccm/10s ± : 22.2

Check tolerance
 ccm/10s ± : 22.2
 Shutoff solenoid
 Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2500
 Del. quantity
 cm³/1000 strokes : 23.0

Tolerance
 cm3/1000 str. +- : 3.0
 Check tolerance
 cm3/1000S. +- : 4.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2650
 Del. quantity
 cm3/1000 strokes : 6.5
 Check tolerance
 cm3/1000S. +- : 5.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2750
 Del. quantity
 cm3/1000 strokes : 2.5
 Tolerance
 cm3/1000 str. +- : 2.5
 Check tolerance
 cm3/1000S. +- : 2.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2250
 Del. quantity
 cm3/1000 strokes : 36.2
 Tolerance
 cm3/1000 str. +- : 1.0
 Check tolerance
 cm3/1000S. +- : 2.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1750
 Del. quantity
 cm3/1000 strokes : 35.9
 Tolerance
 cm3/1000 str. +- : 1.0
 Check tolerance
 cm3/1000S. +- : 2.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 800
 Del. quantity
 cm3/1000 strokes : 35.2
 Tolerance
 cm3/1000 str. +- : 1.5
 Check tolerance
 cm3/1000S. +- : 2.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1125
 Del. quantity
 cm3/1000 strokes : 36.7
 Tolerance
 cm3/1000 str. +- : 0.5

Check tolerance
 cm3/1000S. +- : 2.3
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 425
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. +- : 1.5
 Check tolerance
 cm3/1000S. +- : 1.5

CHECKING LOAD-DEPENDENT START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1125
 Del. quantity
 cm3/1000 strokes : -13.0
 Tolerance
 cm3/1000 str. +- : 2.0
 Check tolerance
 cm3/1000S. +- : 2.0
 Shutoff solenoid
 Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1125
 Del. quantity
 cm3/1000 strokes : -0.6
 Tolerance
 cm3/1000 str. +- : 0.1
 Check tolerance
 cm3/1000S. +- : 0.1
 Shutoff solenoid
 Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1125
 Del. quantity
 cm3/1000 strokes : 5.0
 Tolerance
 cm3/1000 str. +- : 3.0
 Check tolerance
 cm3/1000S. +- : 3.0

Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1125
Tolerance mm \pm : 0.2
Check
tolerance mm \pm : 0.3
Shutoff solenoid
Volt : 12

EXHAUST-GAS RECIRCULATION

Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 24.0
Tolerance
cm³/1000 str. \pm : 0.5
Check tolerance
cm³/1000S. \pm : 2.5
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 310
Del. quantity
cm³/1000 strokes : 35.0
Tolerance
cm³/1000 str. \pm : 10.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 210
Del. quantity
cm³/1000 strokes : 65.0
Tolerance
cm³/1000 str. \pm : 20.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,3
Tolerance mm \pm : $\pm 0,1$
Dimension KF mm : 5,5
Tolerance mm \pm : $\pm 0,2$
Dimension MS mm : 1,5
Tolerance mm \pm : $\pm 0,2$

POTENTIOMETER SET

2. measurement
voltage Volt : ARF 12,0

MICROSWITCH SET

mm : 0,8..3,0
: 11,6..12,4

CONTROL LEVER POSITION SET

Control lever
position YA mm : 37,8..41,8

Control lever
position YB mm : 41,9..52,1

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.04.94
Test oil : ISO 4113

Part no. : 0 460 494 300
Pump designation : VE4/9F2350R452-1

Customer-spec. information
Customer : RENAULT
Motor : J8S - 784 CA

TEST BENCH REQUIREMENTS

Inlet press. bar : 0.35
Tolerance bar +- : 0.05

Test nozzle holde
assembly : 1 688 901 022

Opening pressure
bar : 130
Tolerance bar +- : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1125

Setting mm : 2.8
Tolerance mm +- : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1125
Supply pump
pressure bar : 4.5
Tolerance bar +- : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1125
Del. quantity
cm3/1000 strokes : 36.7
Tolerance
cm3/1000 str. +- : 0.5
Spread
cm3/1000 strokes : 2.5
Shutoff solenoid
Volt : 12

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 550
Del. quantity
cm3/1000 strokes : 6.0
Tolerance
cm3/1000 str. +- : 2.0
Shutoff solenoid
Volt : 12

IDLE DELIVERY

Rated speed rpm : 425
Del. quantity
cm3/1000 strokes : 16.0
Tolerance
cm3/1000 str. +- : 2.0
Spread
cm3/1000 strokes : 2.5
Shutoff solenoid
Volt : 12

HIGH IDLE SETTING

Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 11.5
Tolerance
cm3/1000 str. +- : 2.0
Shutoff solenoid
Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2500
Del. quantity
cm3/1000 strokes : 23.0

Tolerance
cm³/1000 str. + : 3.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 72.0
Tolerance
cm³/1000 str. + : 20.0
Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1125
Del. quantity
cm³/1000 strokes : -11.0
Tolerance
cm³/1000 str. + : 1.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1125
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 str. + : 0.1
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1125
Del. quantity
cm³/1000 strokes : -0.6
Tolerance
cm³/1000 str. + : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2000
SV travel mm : 7.5
Tolerance mm + : 0.4

Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 800

SV travel mm : 1.1
Tolerance mm + : 0.4
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2000
Supply pump
pressure bar : 6.8
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 800
Supply pump
pressure bar : 3.4
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2250
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s + : 41.6
Check tolerance
ccm/10s + : 41.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 800
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s + : 22.2

Check tolerance
ccm/10s + : 22.2
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2500
Del. quantity
cm³/1000 strokes : 23.0

Tolerance
 cm3/1000 str. + : 3.0
 Check tolerance
 cm3/1000S. + : 4.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2650
 Del. quantity
 cm3/1000 strokes : 6.5
 Check tolerance
 cm3/1000S. + : 5.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2750
 Del. quantity
 cm3/1000 strokes : 2.5
 Tolerance
 cm3/1000 str. + : 2.5
 Check tolerance
 cm3/1000S. + : 2.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2250
 Del. quantity
 cm3/1000 strokes : 36.2
 Tolerance
 cm3/1000 str. + : 1.0
 Check tolerance
 cm3/1000S. + : 2.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1750
 Del. quantity
 cm3/1000 strokes : 35.9
 Tolerance
 cm3/1000 str. + : 1.0
 Check tolerance
 cm3/1000S. + : 2.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 800
 Del. quantity
 cm3/1000 strokes : 35.2
 Tolerance
 cm3/1000 str. + : 1.5
 Check tolerance
 cm3/1000S. + : 2.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1125
 Del. quantity
 cm3/1000 strokes : 36.7
 Tolerance
 cm3/1000 str. + : 0.5

Check tolerance
 cm3/1000S. + : 2.3
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF
 CONTROL LEVER, IDLE STOP

Rated speed rpm : 425
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. + : 1.5
 Check tolerance
 cm3/1000S. + : 1.5

CHECKING LOAD-DEPENDENT
 START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1125
 Del. quantity
 cm3/1000 strokes : -13.0
 Tolerance
 cm3/1000 str. + : 2.0
 Check tolerance
 cm3/1000S. + : 2.0
 Shutoff solenoid
 Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1125
 Del. quantity
 cm3/1000 strokes : -0.6
 Tolerance
 cm3/1000 str. + : 0.1
 Check tolerance
 cm3/1000S. + : 0.1
 Shutoff solenoid
 Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1125
 Del. quantity
 cm3/1000 strokes : 5.0
 Tolerance
 cm3/1000 str. + : 3.0
 Check tolerance
 cm3/1000S. + : 3.0

Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1125
Tolerance mm \pm : 0.2
Check
tolerance mm \pm : 0.3
Shutoff solenoid
Volt : 12

EXHAUST-GAS RECIRCULATION

Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 24.0
Tolerance
cm³/1000 str. \pm : 0.5
Check tolerance
cm³/1000S. \pm : 2.5
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 310
Del. quantity
cm³/1000 strokes : 35.0
Tolerance
cm³/1000 str. \pm : 10.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 210
Del. quantity
cm³/1000 strokes : 65.0
Tolerance
cm³/1000 str. \pm : 20.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,3
Tolerance mm \pm : $\pm 0,1$
Dimension KF mm : 5,5
Tolerance mm \pm : $\pm 0,2$
Dimension MS mm : 1,5
Tolerance mm \pm : $\pm 0,2$

POTENTIOMETER SET

2. measurement
voltage Volt : ARF 12,0

MICROSWITCH SET

mm : 0,8...3,0
: 11,6...12,4

CONTROL LEVER POSITION SET

Control lever
position YA mm : 37,8...41,8

Control lever
position YB mm : 41,9...52,1

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 07.07.95
Test oil : ISO 4113
Part no. : 0 460 494 381
Pump designation : VE4/9F2050R452-3

Customer-spec. information
Customer : RENAULT
Motor : J8S - 758
Power KW : 51.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1
Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 022

Opening pressure
bar : 130
Tolerance bar ± : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1125
Setting mm : 2.8
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1125
Supply pump
pressure bar : 4.5
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1125
Del. quantity
cm3/1000 strokes : 35.7
Tolerance
cm3/1000 str. ± : 0.5
Spread
cm3/1000 strokes : 2.5
Shutoff solenoid
Volt : 12

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 4.0
Tolerance
cm3/1000 str. ± : 2.0
Shutoff solenoid
Volt : 12

IDLE DELIVERY

Rated speed rpm : 400
Del. quantity
cm3/1000 strokes : 8.0
Tolerance
cm3/1000 str. ± : 2.0
Spread
cm3/1000 strokes : 2.5
Shutoff solenoid
Volt : 12

HIGH IDLE SETTING

Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 10.5

Tolerance
cm³/1000 str. + : 2.0
Shutoff solenoid
Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2200
Del. quantity
cm³/1000 strokes : 20.0
Tolerance
cm³/1000 str. + : 3.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 72.0
Tolerance
cm³/1000 str. + : 20.0
Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1125
Del. quantity
cm³/1000 strokes : -11.0
Tolerance
cm³/1000 str. + : 1.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1125
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 str. + : 0.1
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1125
Del. quantity
cm³/1000 strokes : -0.6
Tolerance
cm³/1000 str. + : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2000
SV travel mm : 7.5
Tolerance mm + : 0.4
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 800
SV travel mm : 1.1
Tolerance mm + : 0.4
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2000
Supply pump
pressure bar : 6.8
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 800
Supply pump
pressure bar : 3.4
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2000
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s + : 41.6
Check tolerance
ccm/10s + : 41.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 800
Overflow quantity
ccm/10s : 62.5
Tolerance
ccm/10s + : 22.2

Check tolerance
ccm/10s + : 22.2
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2200
Del. quantity
cm3/1000 strokes : 20.0
Tolerance
cm3/1000 str. + : 3.0
Check tolerance
cm3/1000S. + : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2350
Del. quantity
cm3/1000 strokes : 6.5
Check tolerance
cm3/1000S. + : 5.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2450
Del. quantity
cm3/1000 strokes : 2.5
Tolerance
cm3/1000 str. + : 2.5
Check tolerance
cm3/1000S. + : 2.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 2000
Del. quantity
cm3/1000 strokes : 34.8
Tolerance
cm3/1000 str. + : 1.0
Check tolerance
cm3/1000S. + : 2.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 1750
Del. quantity
cm3/1000 strokes : 34.9
Tolerance
cm3/1000 str. + : 1.0
Check tolerance
cm3/1000S. + : 2.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 800
Del. quantity
cm3/1000 strokes : 34.2

Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000S. + : 2.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 1125
Del. quantity
cm3/1000 strokes : 35.7
Tolerance
cm3/1000 str. + : 0.5
Check tolerance
cm3/1000S. + : 2.3
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 400
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000S. + : 1.5
Spread
cm3/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 400
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Spread
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. + : 1.5
Spread
cm3/1000 strokes : 5.0

CHECKING LOAD-DEPENDENT START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1125
Del. quantity
cm3/1000 strokes : -13.0

Tolerance
cm3/1000 str. +- : 2.0
Check tolerance
cm3/1000S. +- : 2.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1125
Del. quantity
cm3/1000 strokes : -0.6
Tolerance
cm3/1000 str. +- : 0.1
Check tolerance
cm3/1000S. +- : 0.1
Shutoff solenoid
Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1125
Del. quantity
cm3/1000 strokes : 5.0
Tolerance
cm3/1000 str. +- : 3.0
Check tolerance
cm3/1000S. +- : 3.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1125
Tolerance mm +- : 0.2
Check
tolerance mm +- : 0.3
Shutoff solenoid
Volt : 12

EXHAUST-GAS RECIRCULATION

Rated speed rpm : 1000
Del. quantity
cm3/1000 strokes : 24.0
Tolerance
cm3/1000 str. +- : 0.5
Check tolerance
cm3/1000S. +- : 2.5
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 310
Del. quantity
cm3/1000 strokes : 35.0
Tolerance
cm3/1000 str. +- : 10.0

Shutoff solenoid
Volt : 12

Rated speed rpm : 210
Del. quantity
cm3/1000 strokes : 65.0
Tolerance
cm3/1000 str. +- : 20.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,3
Tolerance mm +- : +-0,1
Dimension KF mm : 5,5
Tolerance mm +- : +-0,2
Dimension MS mm : 1,2
Tolerance mm +- : +-0,2

MICROSWITCH
SET

: ARF 12,0

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 11.07.95
Test oil : ISO 4113

Part no. : 0 460 484 085
Pump designation : VE4/8F2300R459-2

Customer-spec. information
Customer : RENAULT
Motor : F8Q - 732
Power KW : 47.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holder
assembly : 1 688 901 022

Opening pressure
bar : 130
Tolerance bar ± : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1250

Setting mm : 4.3
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250
Supply pump
pressure bar : 4.8
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : 32.1
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 2.5
Shutoff solenoid
Volt : 12

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 3.0
Tolerance
cm³/1000 str. ± : 2.0
Shutoff solenoid
Volt : 12

IDLE DELIVERY

Rated speed rpm : 410
Del. quantity
cm³/1000 strokes : 11.0
Tolerance
cm³/1000 str. ± : 2.0
Spread
cm³/1000 strokes : 2.5
Shutoff solenoid
Volt : 12

HIGH IDLE SETTING

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 9.0

Tolerance
cm³/1000 str. +- : 2.0
Shutoff solenoid
Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2450
Del. quantity
cm³/1000 strokes : 28.5
Tolerance
cm³/1000 str. +- : 3.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 55.0
Tolerance
cm³/1000 str. +- : 15.0
Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -8.7
Tolerance
cm³/1000 str. +- : 1.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 str. +- : 0.1
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -0.4
Tolerance
cm³/1000 str. +- : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2000
SV travel mm : 8.0
Tolerance mm +- : 0.4
Check
tolerance mm +- : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 750

SV travel mm : 2.1
Tolerance mm +- : 0.4
Check
tolerance mm +- : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 310

SV travel mm : 1.8
Tolerance mm +- : 1.2
Check
tolerance mm +- : 1.2
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 500

SV travel mm : 3.1
Tolerance mm +- : 1.2
Check
tolerance mm +- : 1.2
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2000
Supply pump
pressure bar : 6.8
Tolerance bar +- : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Supply pump
pressure bar : 3.4
Tolerance bar +- : 0.3

Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2250
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s +- : 41.6

Check tolerance
ccm/10s +- : 41.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s +- : 22.2

Check tolerance
ccm/10s +- : 22.2
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2450
Del. quantity
cm3/1000 strokes : 28.5
Tolerance
cm3/1000 str. +- : 3.0
Check tolerance
cm3/1000S. +- : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2650
Del. quantity
cm3/1000 strokes : 14.5
Check tolerance
cm3/1000S. +- : 5.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2950
Del. quantity
cm3/1000 strokes : 2.5
Tolerance
cm3/1000 str. +- : 2.5
Check tolerance
cm3/1000S. +- : 2.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 2250
Del. quantity
cm3/1000 strokes : 34.0

Tolerance
cm3/1000 str. +- : 1.0
Check tolerance
cm3/1000S. +- : 2.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 1625
Del. quantity
cm3/1000 strokes : 31.6
Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. +- : 2.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 2000
Del. quantity
cm3/1000 strokes : 33.5
Tolerance
cm3/1000 str. +- : 1.0
Check tolerance
cm3/1000S. +- : 2.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Del. quantity
cm3/1000 strokes : 31.7
Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. +- : 2.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : 32.1
Tolerance
cm3/1000 str. +- : 0.5
Check tolerance
cm3/1000S. +- : 2.3
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 410
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. +- : 1.5

Spread
cm3/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 410
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Spread
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. + : 1.5
Spread
cm3/1000 strokes : 5.0

CHECKING LOAD-DEPENDENT
START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : -11.0
Tolerance
cm3/1000 str. + : 2.0
Check tolerance
cm3/1000S. + : 2.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : -0.4
Tolerance
cm3/1000 str. + : 0.1
Check tolerance
cm3/1000S. + : 0.1
Shutoff solenoid
Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : 5.0
Tolerance
cm3/1000 str. + : 3.0
Check tolerance
cm3/1000S. + : 3.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Tolerance mm + : 0.2
Check
tolerance mm + : 0.3
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 310
Del. quantity
cm3/1000 strokes : 30.0
Tolerance
cm3/1000 str. + : 15.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 210
Del. quantity
cm3/1000 strokes : 55.0
Tolerance
cm3/1000 str. + : 15.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,3
Tolerance mm + : +1
Dimension KF mm : 5,4
Tolerance mm + : +0,2
Dimension MS mm : 1,3
Tolerance mm + : +0,2

MICROSWITCH
SET

mm : 0,8..3,0
: 9,8..10,6

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 27.11.95
Test oil : ISO 4113

Part no. : 0 460 484 095
Pump designation : VE4/8F2300R463-1

Customer-spec. information

Customer : FIAT-AUTO
Motor : M708SA17/L014
Power KW : 42.0

TEST BENCH REQUIREMENTS

Calibrating-oil return

temperature °C : 45
Tolerance °C ± : 1

Overflow restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holder assembly : 1 688 901 022

Opening pressure bar : 130
Tolerance bar ± : 3

Test Lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1500
Setting mm : 5.3
Tolerance mm ± : 0.2
Shutoff solenoid Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1500
Supply pump pressure bar : 5.6
Tolerance bar ± : 0.3
Shutoff solenoid Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1500
Del. quantity cm³/1000 strokes : 29.3
Tolerance cm³/1000 str. ± : 0.5
Spread cm³/1000 strokes : 2.5
Shutoff solenoid Volt : 12

IDLE SETTING

Rated speed rpm : 450
Del. quantity cm³/1000 strokes : 12.0
Tolerance cm³/1000 str. ± : 2.0
Shutoff solenoid Volt : 12
Spread cm³/1000 strokes : 2.5
Check tolerance cm³/1000s. : 3.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2500
Del. quantity cm³/1000 strokes : 20.0
Tolerance cm³/1000 str. ± : 3.0
Shutoff solenoid Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100

Del. quantity
cm³/1000 strokes : 50.0
Tolerance
cm³/1000 str. ± : 13.0
Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -8.0
Tolerance
cm³/1000 str. ± : 1.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 str. ± : 0.1
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -0.8
Tolerance
cm³/1000 str. ± : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2300
SV travel mm : 9.0
Tolerance mm ± : 0.4
Check
tolerance mm ± : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 800
SV travel mm : 2.0
Tolerance mm ± : 0.4

Check
tolerance mm ± : 0.9
Shutoff solenoid
Volt : 12

Rated speed rpm : 2000

SV travel mm : 7.6
Tolerance mm ± : 0.4
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2300
Supply pump
pressure bar : 7.7
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Supply pump
pressure bar : 3.4
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2300
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s ± : 41.6

Check tolerance
ccm/10s ± : 41.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s ± : 22.2

Check tolerance
ccm/10s ± : 22.2
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2500
Del. quantity
cm³/1000 strokes : 20.0
Tolerance
cm³/1000 str. ± : 3.0

Check tolerance
cm³/1000S. + : 5.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2700
Del. quantity
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. + : 5.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2900
Del. quantity
cm³/1000 strokes : 0.8
Tolerance
cm³/1000 str. + : 0.8
Check tolerance
cm³/1000S. + : 0.8
Shutoff solenoid
Volt : 12

Rated speed rpm : 2300
Del. quantity
cm³/1000 strokes : 31.1
Tolerance
cm³/1000 str. + : 1.2
Check tolerance
cm³/1000S. + : 2.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 str. + : 1.2
Check tolerance
cm³/1000S. + : 2.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 3.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : 29.3
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 2.3

Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5
Spread
cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. + : 1.5
Spread
cm³/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 650
Del. quantity
cm³/1000 strokes : 2.5
Tolerance
cm³/1000 str. + : 2.5
Check tolerance
cm³/1000S. + : 2.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 5.0
Tolerance
cm³/1000 str. + : 3.0
Check tolerance
cm³/1000S. + : 5.5
Shutoff solenoid
Volt : 12

CHECKING LOAD-DEPENDENT
START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -10.0
Tolerance
cm³/1000 str. ± : 3.0
Check tolerance
cm³/1000S. ± : 4.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -0.8
Tolerance
cm³/1000 str. ± : 0.1
Check tolerance
cm³/1000S. ± : 0.1
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 str. ± : 5.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 50.0
Tolerance
cm³/1000 str. ± : 8.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,3
Tolerance mm ± : ±0,1
Dimension KF mm : 5,5
Tolerance mm ± : ±0,2
Dimension MS mm : 1,8
Tolerance mm ± : ±0,2

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 07.02.96
Test oil : ISO 4113
Part no. : 0 460 494 356
Pump designation : VE4/9F2100R471-1

Customer-spec. information
Customer : VW
Motor : 1,9 L UD f. T4
Power KW : 50.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 111

Opening pressure
bar : 147
Tolerance bar ± : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 0,9
Tolerance mm ± : ±0,02
Outlet : A

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1250
Setting mm : 3.9
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250
Supply pump
pressure bar : 5.6
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : 40.0
Tolerance
cm3/1000 str. ± : 0.5
Spread
cm3/1000 strokes : 2.5
Shutoff solenoid
Volt : 12

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 550
Del. quantity
cm3/1000 strokes : 5.5
Tolerance
cm3/1000 str. ± : 0.5
Shutoff solenoid
Volt : 12

IDLE DELIVERY

Rated speed rpm : 425
Del. quantity
cm3/1000 strokes : 6.5
Tolerance
cm3/1000 str. ± : 1.0
Spread
cm3/1000 strokes : 2.0

Shutoff solenoid
Volt : 12

HIGH IDLE SETTING

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 6.5
Tolerance
cm³/1000 str. + : 1.0
Shutoff solenoid
Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2400
Del. quantity
cm³/1000 strokes : 15.0
Tolerance
cm³/1000 str. + : 2.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 65.0
Tolerance
cm³/1000 str. + : 25.0
Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -7.0
Tolerance
cm³/1000 str. + : 1.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 str. + : 0.1
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -1.0
Tolerance
cm³/1000 str. + : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1700
SV travel mm : 6.0
Tolerance mm + : 0.4
Check
tolerance mm + : 0.8
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
SV travel mm : 1.5
Tolerance mm + : 0.4
Check
tolerance mm + : 0.8
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1700
Supply pump
pressure bar : 6.9
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Supply pump
pressure bar : 4.1
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 1850
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s + : 41.6
Check tolerance
ccm/10s + : 55.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
 Overflow quantity
 ccm/10s : 63.8
 Tolerance
 ccm/10s +- : 22.2
 Check tolerance
 ccm/10s +- : 34.7
 Shutoff solenoid
 Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2400
 Del. quantity
 cm3/1000 strokes : 15.0
 Tolerance
 cm3/1000 str. +- : 2.0
 Check tolerance
 cm3/1000S. +- : 4.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2250
 Del. quantity
 cm3/1000 strokes : 29.0
 Tolerance
 cm3/1000 str. +- : 5.0
 Check tolerance
 cm3/1000S. +- : 6.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2650
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. +- : 1.5
 Check tolerance
 cm3/1000S. +- : 1.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1850
 Del. quantity
 cm3/1000 strokes : 41.0
 Tolerance
 cm3/1000 str. +- : 1.0
 Check tolerance
 cm3/1000S. +- : 2.2
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 450
 Del. quantity
 cm3/1000 strokes : 39.0
 Tolerance
 cm3/1000 str. +- : 3.0
 Check tolerance
 cm3/1000S. +- : 5.5

Shutoff solenoid
 Volt : 12

Rated speed rpm : 750
 Del. quantity
 cm3/1000 strokes : 38.5
 Tolerance
 cm3/1000 str. +- : 1.5
 Check tolerance
 cm3/1000S. +- : 3.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1250
 Del. quantity
 cm3/1000 strokes : 40.0
 Tolerance
 cm3/1000 str. +- : 0.5
 Check tolerance
 cm3/1000S. +- : 2.2
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 425
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. +- : 1.5
 Check tolerance
 cm3/1000S. +- : 1.5
 Spread
 cm3/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 425
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. +- : 1.5
 Spread
 cm3/1000 strokes : 5.0
 Check tolerance
 cm3/1000S. +- : 1.5
 Spread
 cm3/1000 strokes : 5.0

RESIDUAL QUANTITY

Rated speed rpm : 515
 Del. quantity
 cm3/1000 strokes : 6.5

Tolerance
 cm³/1000 str. + : 1.0
 Check tolerance
 cm³/1000S. + : 2.5
 Shutoff solenoid
 Volt : 12

CHECKING LOAD-DEPENDENT START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1250
 Del. quantity
 cm³/1000 strokes : -10.0
 Tolerance
 cm³/1000 str. + : 3.0
 Check tolerance
 cm³/1000S. + : 4.0
 Shutoff solenoid
 Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
 Del. quantity
 cm³/1000 strokes : -1.0
 Tolerance
 cm³/1000 str. + : 0.1
 Check tolerance
 cm³/1000S. + : 0.1
 Shutoff solenoid
 Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1250
 Del. quantity
 cm³/1000 strokes : 5.0
 Tolerance
 cm³/1000 str. + : 3.0
 Check tolerance
 cm³/1000S. + : 3.0
 Shutoff solenoid
 Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1250
 Supply pump
 pressure bar : -0.9
 Tolerance bar + : 0.2
 Shutoff solenoid
 Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250

Tolerance mm +- : 0.2
 Check
 tolerance mm + : 0.6
 Shutoff solenoid
 Volt : 12

EXHAUST-GAS RECIRCULATION

Rated speed rpm : 1000
 Del. quantity
 cm³/1000 strokes : 22.0
 Tolerance
 cm³/1000 str. + : 1.0
 Check tolerance
 cm³/1000S. + : 3.0
 Shutoff solenoid
 Volt : 12

START TRANSITION

Rated speed rpm : 380
 Del. quantity
 cm³/1000 strokes : 35.0
 Tolerance
 cm³/1000 str. + : 10.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 180
 Del. quantity
 cm³/1000 strokes : 65.0
 Tolerance
 cm³/1000 str. + : 25.0
 Shutoff solenoid
 Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,3
 Tolerance mm +- : +-0,1
 Dimension KF mm : 5,3
 Tolerance mm +- : +-0,2
 Dimension MS mm : 1,3
 Tolerance mm +- : +-0,2

MICROSWITCH SET

mm : 0,8...3,0
 : ARF 12,0

CONTROL LEVER POSITION SET

Control lever
position YA mm : 20,0..22,0

Control lever
position YB mm : 61,5..72,5

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 12.03.96
Test oil : ISO 4113

Part no. : 0 460 494 391
Pump designation : VE4/9F2100R471-2

Customer-spec. information
Customer : VW
Motor : 1.9L UD
Power KW : 50.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 111

Opening pressure
bar : 147
Tolerance bar ± : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1250
Setting mm : 3.9
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250
Supply pump
pressure bar : 5.6
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : 40.0
Tolerance
cm3/1000 str. ± : 0.5
Spread
cm3/1000 strokes : 2.5
Shutoff solenoid
Volt : 12

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 550
Del. quantity
cm3/1000 strokes : 5.5
Tolerance
cm3/1000 str. ± : 0.5
Shutoff solenoid
Volt : 12

IDLE DELIVERY

Rated speed rpm : 425
Del. quantity
cm3/1000 strokes : 6.5
Tolerance
cm3/1000 str. ± : 1.0
Spread
cm3/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

HIGH IDLE SETTING

Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 6.5

Tolerance
cm³/1000 str. + : 1.0
Shutoff solenoid
Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2400
Del. quantity
cm³/1000 strokes : 15.0
Tolerance
cm³/1000 str. + : 2.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 65.0
Tolerance
cm³/1000 str. + : 25.0
Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -7.0
Tolerance
cm³/1000 str. + : 1.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 str. + : 0.1
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -1.0
Tolerance
cm³/1000 str. + : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1700
SV travel mm : 6.0
Tolerance mm + : 0.4
Check
tolerance mm + : 0.8
Shutoff solenoid
Volt : 12

Rated speed rpm : 750

SV travel mm : 1.5
Tolerance mm + : 0.4
Check
tolerance mm + : 0.8
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1700
Supply pump
pressure bar : 6.9
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Supply pump
pressure bar : 4.1
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 1850
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s + : 41.6
Check tolerance
ccm/10s + : 55.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s + : 22.2

Check tolerance
ccm/10s + : 34.7
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2400
Del. quantity
cm3/1000 strokes : 15.0
Tolerance
cm3/1000 str. + : 2.0
Check tolerance
cm3/1000S. + : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2250
Del. quantity
cm3/1000 strokes : 29.0
Tolerance
cm3/1000 str. + : 5.0
Check tolerance
cm3/1000S. + : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2650
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000S. + : 1.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 1850
Del. quantity
cm3/1000 strokes : 41.0
Tolerance
cm3/1000 str. + : 1.0
Check tolerance
cm3/1000S. + : 2.2
Shutoff solenoid
Volt : 12

Rated speed rpm : 450
Del. quantity
cm3/1000 strokes : 39.0
Tolerance
cm3/1000 str. + : 3.0
Check tolerance
cm3/1000S. + : 5.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 750

Del. quantity
cm3/1000 strokes : 38.5
Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000S. + : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : 40.0
Tolerance
cm3/1000 str. + : 0.5
Check tolerance
cm3/1000S. + : 2.2
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 425
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000S. + : 1.5
Spread
cm3/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 425
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Spread
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. + : 1.5
Spread
cm3/1000 strokes : 5.0

RESIDUAL QUANTITY

Rated speed rpm : 515
Del. quantity
cm3/1000 strokes : 6.5
Tolerance
cm3/1000 str. + : 1.0
Check tolerance
cm3/1000S. + : 2.5

Shutoff solenoid
Volt : 12

CHECKING LOAD-DEPENDENT
START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -10.0
Tolerance
cm³/1000 str. + : 3.0
Check tolerance
cm³/1000S. + : 4.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -1.0
Tolerance
cm³/1000 str. + : 0.1
Check tolerance
cm³/1000S. + : 0.1
Shutoff solenoid
Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : 5.0
Tolerance
cm³/1000 str. + : 3.0
Check tolerance
cm³/1000S. + : 3.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1250
Supply pump
pressure bar : -0.9
Tolerance bar + : 0.2
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Tolerance mm + : 0.2
Check
tolerance mm + : 0.6

Shutoff solenoid
Volt : 12

EXHAUST-GAS RECIRCULATION

Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 22.0
Tolerance
cm³/1000 str. + : 1.0
Check tolerance
cm³/1000S. + : 3.0
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 380
Del. quantity
cm³/1000 strokes : 35.0
Tolerance
cm³/1000 str. + : 10.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 180
Del. quantity
cm³/1000 strokes : 65.0
Tolerance
cm³/1000 str. + : 25.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,3
Tolerance mm + : +0,1
Dimension KF mm : 5,3
Tolerance mm + : +0,2
Dimension MS mm : 1,3
Tolerance mm + : +0,2

MICROSWITCH
SET

: ARF 12,0

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 20,0..22,0

Control lever
position YB mm : 61,5..72,5

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.03.94
Test oil : ISO 4113

Part no. : 0 460 494 309
Pump designation : VE4/9F2250R472

Customer-spec. information

Customer : PSA
Motor : XUD 9 TE-Y CATA

TEST BENCH REQUIREMENTS

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar \pm : 0.05

Test nozzle holde
assembly : 1 688 901 022

Opening pressure
bar : 130
Tolerance bar \pm : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 0,3
Tolerance mm \pm : $\pm 0,2$
Outlet : A

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1500
Aneroid pressure
hPa : 1000
Setting mm : 4.1
Tolerance mm \pm : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1500
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 5.7
Tolerance bar \pm : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 54.0
Tolerance
cm³/1000 str. \pm : 0.5
Spread
cm³/1000 strokes : 2.0
Check tolerance
cm³/1000S. : 3.0
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 37.0
Tolerance
cm³/1000 str. \pm : 0.5
Shutoff solenoid
Volt : 12
Check tolerance
cm³/1000S. : 3.0

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 490

Del. quantity
cm³/1000 strokes : 8.5
Tolerance
cm³/1000 str. + : 0.5
Shutoff solenoid
Volt : 12

IDLE DELIVERY

Rated speed rpm : 440
Del. quantity
cm³/1000 strokes : 16.0
Tolerance
cm³/1000 str. + : 1.0
Spread
cm³/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

HIGH IDLE SETTING

Rated speed rpm : 490
Del. quantity
cm³/1000 strokes : 16.0
Tolerance
cm³/1000 str. + : 1.0
Shutoff solenoid
Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2575
Pressure hPa : 1000
Del. quantity
cm³/1000 strokes : 14.0
Tolerance
cm³/1000 str. + : 2.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 150
Del. quantity
cm³/1000 strokes : 52.0
Tolerance
cm³/1000 str. + : 15.0
Shutoff solenoid
Volt : 12

SET GRADUATED STARTING DELIVERY CONTROL LEVER, IDLE STOP

Rated speed rpm : 200
Del. quantity
cm³/1000 strokes : 53.0
Tolerance
cm³/1000 str. + : 3.0
Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : 2.6
Tolerance
cm³/1000 str. + : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2000
Aneroid pressure
hPa : 1000
SV travel mm : 6.5
Tolerance mm + : 0.4
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 900
Aneroid pressure
hPa : 1000
SV travel mm : 1.2
Tolerance mm + : 0.4
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2000
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 6.8
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 900
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 4.2
Tolerance bar + : 0.3

Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2150
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s + : 41.6

Check tolerance
ccm/10s + : 41.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s + : 22.2

Check tolerance
ccm/10s + : 22.2
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2575
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 14.0
Tolerance
cm³/1000 str. + : 2.0
Check tolerance
cm³/1000S. + : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2375
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 39.0
Tolerance
cm³/1000 str. + : 5.0
Check tolerance
cm³/1000S. + : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2750
Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 3.0
Tolerance
cm³/1000 str. + : 3.0
Check tolerance
cm³/1000S. + : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Aneroid pressure
hPa : 350
Del. quantity
cm³/1000 strokes : 46.0
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2150
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 50.1
Tolerance
cm³/1000 str. + : 1.0
Check tolerance
cm³/1000S. + : 2.2
Shutoff solenoid
Volt : 12

Rated speed rpm : 2000
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 52.0
Tolerance
cm³/1000 str. + : 1.0
Check tolerance
cm³/1000S. + : 2.2
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 48.3
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 54.0
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 2.2
Shutoff solenoid
Volt : 12

MECHANICAL SHUTOFF

Rated speed rpm : 2000
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5

CHECKING LOAD-DEPENDENT START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : 35.0
Tolerance
cm³/1000 str. + : 1.0
Check tolerance
cm³/1000S. + : 4.5
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500

Del. quantity
cm³/1000 strokes : 2.6
Tolerance
cm³/1000 str. + : 0.1
Check tolerance
cm³/1000S. + : 0.1
Shutoff solenoid
Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : 5.0
Tolerance
cm³/1000 str. + : 3.0
Check tolerance
cm³/1000S. + : 3.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1500
Supply pump
pressure bar : 4.5
Tolerance bar + : 0.6
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Tolerance mm + : 0.7
Check
tolerance mm + : 0.8
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 380
Del. quantity
cm³/1000 strokes : 35.0
Tolerance
cm³/1000 str. + : 10.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,3
Tolerance mm + : +0,1
Dimension KF mm : 6,0
Tolerance mm + : +0,2
Dimension MS mm : 1,3
Tolerance mm + : +0,2

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 18,8..22,8

Control lever
position YB mm : 78,0..92,0

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 24.03.94
Test oil : ISO 4113
Part no. : 0 460 494 344
Pump designation : VE4/9F2250R472-1

Customer-spec. information

Customer : PSA
Motor : XUD 9 TE-Y

TEST BENCH REQUIREMENTS

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar \pm : 0.05

Test nozzle holde
assembly : 1 688 901 022

Opening pressure
bar : 130
Tolerance bar \pm : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 0,3
Tolerance mm \pm : $\pm 0,02$
Outlet : A

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1500
Aneroid pressure
hPa : 1000
Setting mm : 4.1
Tolerance mm \pm : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1500
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 5.7
Tolerance bar \pm : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 54.0
Tolerance
cm³/1000 str. \pm : 0.5
Spread
cm³/1000 strokes : 2.0
Check tolerance
cm³/1000s. : 3.0
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 37.0
Tolerance
cm³/1000 str. \pm : 0.5
Shutoff solenoid
Volt : 12
Check tolerance
cm³/1000s. : 3.0

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 490

Del. quantity
cm3/1000 strokes : 8.5
Tolerance
cm3/1000 str. +- : 0.5
Shutoff solenoid
Volt : 12

IDLE DELIVERY

Rated speed rpm : 440
Del. quantity
cm3/1000 strokes : 16.0
Tolerance
cm3/1000 str. +- : 1.0
Spread
cm3/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

HIGH IDLE SETTING

Rated speed rpm : 490
Del. quantity
cm3/1000 strokes : 16.0
Tolerance
cm3/1000 str. +- : 1.0
Shutoff solenoid
Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2575
Pressure hPa : 1000
Del. quantity
cm3/1000 strokes : 14.0
Tolerance
cm3/1000 str. +- : 2.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 150
Del. quantity
cm3/1000 strokes : 52.0
Tolerance
cm3/1000 str. +- : 15.0
Shutoff solenoid
Volt : 12

SET GRADUATED STARTING DELIVERY CONTROL LEVER, IDLE STOP

Rated speed rpm : 200
Del. quantity
cm3/1000 strokes : 53.0
Tolerance
cm3/1000 str. +- : 3.0
Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm3/1000 strokes : 2.6
Tolerance
cm3/1000 str. +- : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2000
Aneroid pressure
hPa : 1000
SV travel mm : 6.5
Tolerance mm +- : 0.4
Check
tolerance mm +- : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 900
Aneroid pressure
hPa : 1000
SV travel mm : 1.2
Tolerance mm +- : 0.4
Check
tolerance mm +- : 0.7
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2000
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 6.8
Tolerance bar +- : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 900
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 4.2
Tolerance bar +- : 0.3

Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2150
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s +- : 41.6

Check tolerance
ccm/10s +- : 41.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s +- : 22.2

Check tolerance
ccm/10s +- : 22.2
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2575
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 14.0
Tolerance
cm³/1000 str. +- : 2.0
Check tolerance
cm³/1000S. +- : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2375
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 39.0
Tolerance
cm³/1000 str. +- : 5.0
Check tolerance
cm³/1000S. +- : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2750
Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 3.0
Tolerance
cm³/1000 str. +- : 3.0
Check tolerance
cm³/1000S. +- : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Aneroid pressure
hPa : 350
Del. quantity
cm³/1000 strokes : 46.0
Tolerance
cm³/1000 str. +- : 0.5
Check tolerance
cm³/1000S. +- : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2150
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 50.1
Tolerance
cm³/1000 str. +- : 1.0
Check tolerance
cm³/1000S. +- : 2.2
Shutoff solenoid
Volt : 12

Rated speed rpm : 2000
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 52.0
Tolerance
cm³/1000 str. +- : 1.0
Check tolerance
cm³/1000S. +- : 2.2
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 48.3
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000

Del. quantity
cm3/1000 strokes : 54.0
Tolerance
cm3/1000 str. + : 0.5
Check tolerance
cm3/1000S. + : 2.2
Shutoff solenoid
Volt : 12

MECHANICAL SHUTOFF

Rated speed rpm : 2000
Aneroid pressure
hPa : 1000
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000S. + : 1.5
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 400
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000S. + : 1.5

CHECKING LOAD-DEPENDENT START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm3/1000 strokes : 35.0
Tolerance
cm3/1000 str. + : 1.0
Check tolerance
cm3/1000S. + : 4.5
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500

H05

Del. quantity
cm3/1000 strokes : 2.6
Tolerance
cm3/1000 str. + : 0.1
Check tolerance
cm3/1000S. + : 0.1
Shutoff solenoid
Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm3/1000 strokes : 5.0
Tolerance
cm3/1000 str. + : 3.0
Check tolerance
cm3/1000S. + : 3.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1500
Supply pump
pressure bar : 4.5
Tolerance bar + : 0.6
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Tolerance mm + : 0.7
Check
tolerance mm + : 0.8
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 380
Del. quantity
cm3/1000 strokes : 35.0
Tolerance
cm3/1000 str. + : 10.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,3
Tolerance mm + : +0,1
Dimension KF mm : 6,0
Tolerance mm + : +0,2
Dimension MS mm : 1,3
Tolerance mm + : +0,2

CONTROL LEVER POSITION
SET

Control Lever
position YA mm : 28,8..32,8

Control Lever
position YB mm : 68,0..82,0

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 02.06.95
Test oil : ISO 4113

Part no. : 0 460 494 419
Pump designation : VE4/9F2050R476-1

Customer-spec. information
Customer : IVECO-SOFIM
Motor : 8140.97.2500
Power KW : 85.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.75

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 022

Opening pressure
bar : 130
Tolerance bar ± : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

BEGINNING OF DELIVERY

Prestroke

H07

(as of UT) mm : 0,2
Tolerance mm ± : ±0,02
Check
tolerance mm ± : ±0,04

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1400
Aneroid pressure
hPa : 1000

Setting mm : 6.0
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1400
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 6.4
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1200
Aneroid pressure
hPa : 1000
Del. quantity
cm3/1000 strokes : 68.0
Tolerance
cm3/1000 str. ± : 0.5
Spread
cm3/1000 strokes : 3.0
Check tolerance
cm3/1000S. : 3.0
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 42.0
Tolerance
cm3/1000 str. ± : 0.5
Shutoff solenoid
Volt : 12
Check tolerance
cm3/1000S. : 3.0

HOUSING-FIXED IDLE SPRING
RESIDUAL QUANTITY SETTING

Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 3.0
Tolerance
cm³/1000 str. +- : 2.5
Shutoff solenoid
Volt : 12

IDLE DELIVERY

Rated speed rpm : 425
Del. quantity
cm³/1000 strokes : 12.5
Tolerance
cm³/1000 str. +- : 2.0
Spread
cm³/1000 strokes : 2.5
Shutoff solenoid
Volt : 12

HIGH IDLE SETTING

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 str. +- : 2.0
Shutoff solenoid
Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2400
Pressure hPa : 1000
Del. quantity
cm³/1000 strokes : 38.0
Tolerance
cm³/1000 str. +- : 3.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 62.0
Tolerance
cm³/1000 str. +- : 12.0
Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY
SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1000
Pressure hPa : 1000
Del. quantity
cm³/1000 strokes : -20.0
Tolerance
cm³/1000 str. +- : 1.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 str. +- : 0.1
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : -0.8
Tolerance
cm³/1000 str. +- : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1800
Aneroid pressure
hPa : 1000
SV travel mm : 8.7
Tolerance mm +- : 0.4
Check
tolerance mm +- : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000

SV travel mm : 3.0
Tolerance mm +- : 0.4
Check
tolerance mm +- : 0.7

Shutoff solenoid
Volt : 12

Rated speed rpm : 2050
Aneroid pressure
hPa : 1000

SV travel mm : 10.0
Tolerance mm \pm : 0.4
Check
tolerance mm \pm : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 1400
Aneroid pressure
hPa : 1000

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2050
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 8.7
Tolerance bar \pm : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 3.4
Tolerance bar \pm : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 500
Overflow quantity
ccm/10s : 111.1
Tolerance
ccm/10s \pm : 22.2

Check tolerance
ccm/10s \pm : 22.2
Shutoff solenoid
Volt : 12

Rated speed rpm : 2050
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 138.8
Tolerance
ccm/10s \pm : 41.6

Check tolerance
ccm/10s \pm : 41.6
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2400
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 33.0
Tolerance
cm³/1000 str. \pm : 3.0
Check tolerance
cm³/1000s. \pm : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2600
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 7.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2750
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. \pm : 1.5
Check tolerance
cm³/1000s. \pm : 1.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Aneroid pressure
hPa : 350

LDA/
HBA stroke mm : 5.0
Del. quantity
cm³/1000 strokes : 48.0
Tolerance
cm³/1000 str. \pm : 0.5
Check tolerance
cm³/1000s. \pm : 2.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 2050
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 69.5

Tolerance
 cm3/1000 str. + : 1.5
 Check tolerance
 cm3/1000S. + : 2.2
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1950
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm3/1000 strokes : 69.0
 Tolerance
 cm3/1000 str. + : 1.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 600
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm3/1000 strokes : 55.5
 Tolerance
 cm3/1000 str. + : 2.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1200
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm3/1000 strokes : 68.0
 Tolerance
 cm3/1000 str. + : 0.5
 Check tolerance
 cm3/1000S. + : 2.0
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF
 CONTROL LEVER, IDLE STOP

Rated speed rpm : 425
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. + : 1.5
 Check tolerance
 cm3/1000S. + : 1.5

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 425
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. + : 1.5

Check tolerance
 cm3/1000S. + : 1.5

RESIDUAL QUANTITY

Rated speed rpm : 900
 Del. quantity
 cm3/1000 strokes : 1.0
 Tolerance
 cm3/1000 str. + : 1.0
 Shutoff solenoid
 Volt : 12

IDLE DELIVERY

Rated speed rpm : 475
 Del. quantity
 cm3/1000 strokes : 5.0
 Tolerance
 cm3/1000 str. + : 3.0
 Shutoff solenoid
 Volt : 12

CHECKING LOAD-DEPENDENT
 START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1000
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm3/1000 strokes : -22.0
 Tolerance
 cm3/1000 str. + : 3.0
 Check tolerance
 cm3/1000S. + : 4.0
 Shutoff solenoid
 Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1000
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm3/1000 strokes : -0.8
 Tolerance
 cm3/1000 str. + : 0.1
 Check tolerance
 cm3/1000S. + : 0.1
 Shutoff solenoid
 Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. + : 1.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000
Check
tolerance mm + : 0.4
Shutoff solenoid
Volt : 12

EXHAUST-GAS RECIRCULATION

Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 23.0
Tolerance
cm³/1000 str. + : 1.0
Check tolerance
cm³/1000S. + : 2.5
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 42.0
Tolerance
cm³/1000 str. + : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 200
Del. quantity
cm³/1000 strokes : 62.0
Tolerance
cm³/1000 str. + : 12.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/
HBA stroke mm : 5.0
Dimension KF mm : 5,8

Tolerance mm +- : +-0,2
Dimension MS mm : 1,3
Tolerance mm +- : +-0,2
KSB travel mm : 13,0

POTENTIOMETER SET

1. measurement
voltage Volt : 5,0
1. measurement
voltage Volt : 2,1

MICROSWITCH SET

: ARF 12,0

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.04.95
Test oil : ISO 4113

Part no. : C 460 494 332
Pump designation : VE4/9F2400R486

Customer-spec. information

Customer : RENAULT
Motor : G8T - 790
Power KW : 60.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 022

Opening pressure
bar : 130
Tolerance bar ± : 3

Test Lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

H12

Plunger stroke mm : 1,0
Tolerance mm ± : ±0,02
Outlet : C

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1250

Setting mm : 2.5
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250

Supply pump
pressure bar : 6.2
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1250

Del. quantity
cm3/1000 strokes : 37.4
Tolerance
cm3/1000 str. ± : 0.5
Spread
cm3/1000 strokes : 2.5
Shutoff solenoid
Volt : 12

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 450

Del. quantity
cm3/1000 strokes : 8.0
Tolerance
cm3/1000 str. ± : 2.0
Shutoff solenoid
Volt : 12

IDLE DELIVERY

Rated speed rpm : 385

Del. quantity
cm3/1000 strokes : 14.0
Tolerance
cm3/1000 str. ± : 2.0
Spread
cm3/1000 strokes : 2.5

Shutoff solenoid
Volt : 12

HIGH IDLE SETTING

Rated speed rpm : 435
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 str. ± : 2.0
Shutoff solenoid
Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2600
Del. quantity
cm³/1000 strokes : 23.0
Tolerance
cm³/1000 str. ± : 3.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 str. ± : 15.0
Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -7.1
Tolerance
cm³/1000 str. ± : 1.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 str. ± : 0.1
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -0.8
Tolerance
cm³/1000 str. ± : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2000
SV travel mm : 6.4
Tolerance mm ± : 0.4
Check
tolerance mm ± : 0.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 1000
SV travel mm : 1.0
Tolerance mm ± : 0.4
Check
tolerance mm ± : 0.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
SV travel mm : 1.0
Tolerance mm ± : 1.2
Check
tolerance mm ± : 1.2
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2000
Supply pump
pressure bar : 8.2
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Supply pump
pressure bar : 4.7
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2300
 Overflow quantity
 ccm/10s : 97.2
 Tolerance
 ccm/10s +- : 41.6

Check tolerance
 ccm/10s +- : 41.6
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 750
 Overflow quantity
 ccm/10s : 63.8
 Tolerance
 ccm/10s +- : 22.2

Check tolerance
 ccm/10s +- : 22.2
 Shutoff solenoid
 Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2600
 Del. quantity
 cm3/1000 strokes : 23.0
 Tolerance
 cm3/1000 str. +- : 3.0
 Check tolerance
 cm3/1000s. +- : 4.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2500
 Del. quantity
 cm3/1000 strokes : 35.5
 Tolerance
 cm3/1000 str. +- : 4.0
 Check tolerance
 cm3/1000s. +- : 5.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2300
 Del. quantity
 cm3/1000 strokes : 2.5
 Tolerance
 cm3/1000 str. +- : 2.5
 Check tolerance
 cm3/1000s. +- : 2.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2300
 Del. quantity
 cm3/1000 strokes : 41.0
 Tolerance
 cm3/1000 str. +- : 1.0

Check tolerance
 cm3/1000s. +- : 2.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1000
 Del. quantity
 cm3/1000 strokes : 37.7
 Tolerance
 cm3/1000 str. +- : 1.5
 Check tolerance
 cm3/1000s. +- : 2.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2000
 Del. quantity
 cm3/1000 strokes : 40.3
 Tolerance
 cm3/1000 str. +- : 1.0
 Check tolerance
 cm3/1000s. +- : 2.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 750
 Del. quantity
 cm3/1000 strokes : 36.5
 Tolerance
 cm3/1000 str. +- : 1.5
 Check tolerance
 cm3/1000s. +- : 2.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1250
 Del. quantity
 cm3/1000 strokes : 37.4
 Tolerance
 cm3/1000 str. +- : 0.5
 Check tolerance
 cm3/1000s. +- : 2.3
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 385
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. +- : 1.5
 Check tolerance
 cm3/1000s. +- : 1.5
 Spread
 cm3/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 385
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. +- : 1.5
 Spread
 cm3/1000 strokes : 5.0
 Check tolerance
 cm3/1000S. +- : 1.5
 Spread
 cm3/1000 strokes : 5.0

CHECKING LOAD-DEPENDENT START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1250
 Del. quantity
 cm3/1000 strokes : -9.4
 Tolerance
 cm3/1000 str. +- : 2.0
 Check tolerance
 cm3/1000S. +- : 2.0
 Shutoff solenoid
 Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
 Del. quantity
 cm3/1000 strokes : -0.8
 Tolerance
 cm3/1000 str. +- : 0.1
 Check tolerance
 cm3/1000S. +- : 0.1
 Shutoff solenoid
 Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1250
 Del. quantity
 cm3/1000 strokes : 5.0
 Tolerance
 cm3/1000 str. +- : 3.0
 Check tolerance
 cm3/1000S. +- : 3.0
 Shutoff solenoid
 Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
 Tolerance mm +- : 0.2
 Check
 tolerance mm +- : 0.3

H15

Shutoff solenoid
 Volt : 12

EXHAUST-GAS RECIRCULATION

Rated speed rpm : 1250
 Del. quantity
 cm3/1000 strokes : 23.0
 Tolerance
 cm3/1000 str. +- : 0.5
 Check tolerance
 cm3/1000S. +- : 2.5
 Shutoff solenoid
 Volt : 12

START TRANSITION

Rated speed rpm : 350
 Del. quantity
 cm3/1000 strokes : 30.0
 Tolerance
 cm3/1000 str. +- : 15.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 200
 Del. quantity
 cm3/1000 strokes : 70.0
 Tolerance
 cm3/1000 str. +- : 25.0
 Shutoff solenoid
 Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,7
 Tolerance mm +- : +-0,1
 Dimension KF mm : 6,0
 Tolerance mm +- : +-0,2
 Dimension MS mm : 0,9
 Tolerance mm +- : +-0,2

MICROSWITCH SET

mm : 0,8...3,0

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.04.95
Test oil : ISO 4113

Part no. : 0 460 494 333
Pump designation : VE4/9F2400R486-1

Customer-spec. information
Customer : RENAULT
Motor : G8T - 790 CA
Power KW : 60.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holder
assembly : 1 688 901 022

Opening pressure
bar : 130
Tolerance bar ± : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 1,0
Tolerance mm ± : ±0,02
Outlet : C

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1250

Setting mm : 2.5
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250
Supply pump
pressure bar : 6.2
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : 37.4
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 2.5
Shutoff solenoid
Volt : 12

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 8.0
Tolerance
cm³/1000 str. ± : 2.0
Shutoff solenoid
Volt : 12

IDLE DELIVERY

Rated speed rpm : 385
Del. quantity
cm³/1000 strokes : 14.0
Tolerance
cm³/1000 str. ± : 2.0
Spread
cm³/1000 strokes : 2.5

Shutoff solenoid
Volt : 12

HIGH IDLE SETTING

Rated speed rpm : 435
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 str. ± : 2.0
Shutoff solenoid
Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2600
Del. quantity
cm³/1000 strokes : 23.0
Tolerance
cm³/1000 str. ± : 3.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 str. ± : 15.0
Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -7.1
Tolerance
cm³/1000 str. ± : 1.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 str. ± : 0.1
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -0.8
Tolerance
cm³/1000 str. ± : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2000
SV travel mm : 6.4
Tolerance mm ± : 0.4
Check
tolerance mm ± : 0.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 1000
SV travel mm : 1.0
Tolerance mm ± : 0.4
Check
tolerance mm ± : 0.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
SV travel mm : 1.0
Tolerance mm ± : 1.2
Check
tolerance mm ± : 1.2
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2000
Supply pump
pressure bar : 8.2
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Supply pump
pressure bar : 4.7
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2300
 Overflow quantity
 ccm/10s : 97.2
 Tolerance
 ccm/10s ± : 41.6

Check tolerance
 ccm/10s ± : 41.6
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 750
 Overflow quantity
 ccm/10s : 63.8
 Tolerance
 ccm/10s ± : 22.2

Check tolerance
 ccm/10s ± : 22.2
 Shutoff solenoid
 Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2600
 Del. quantity
 cm³/1000 strokes : 23.0
 Tolerance
 cm³/1000 str. ± : 3.0
 Check tolerance
 cm³/1000S. ± : 4.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2500
 Del. quantity
 cm³/1000 strokes : 35.5
 Tolerance
 cm³/1000 str. ± : 4.0
 Check tolerance
 cm³/1000S. ± : 5.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2800
 Del. quantity
 cm³/1000 strokes : 2.5
 Tolerance
 cm³/1000 str. ± : 2.5
 Check tolerance
 cm³/1000S. ± : 2.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2300
 Del. quantity
 cm³/1000 strokes : 41.0
 Tolerance
 cm³/1000 str. ± : 1.0

Check tolerance
 cm³/1000S. ± : 2.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1000
 Del. quantity
 cm³/1000 strokes : 37.7
 Tolerance
 cm³/1000 str. ± : 1.5
 Check tolerance
 cm³/1000S. ± : 2.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2000
 Del. quantity
 cm³/1000 strokes : 40.3
 Tolerance
 cm³/1000 str. ± : 1.0
 Check tolerance
 cm³/1000S. ± : 2.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 750
 Del. quantity
 cm³/1000 strokes : 36.5
 Tolerance
 cm³/1000 str. ± : 1.5
 Check tolerance
 cm³/1000S. ± : 2.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1250
 Del. quantity
 cm³/1000 strokes : 37.4
 Tolerance
 cm³/1000 str. ± : 0.5
 Check tolerance
 cm³/1000S. ± : 2.3
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 385
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. ± : 1.5
 Check tolerance
 cm³/1000S. ± : 1.5
 Spread
 cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 385
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. + : 1.5
 Spread
 cm3/1000 strokes : 5.0
 Check tolerance
 cm3/1000S. + : 1.5
 Spread
 cm3/1000 strokes : 5.0

CHECKING LOAD-DEPENDENT START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1250
 Del. quantity
 cm3/1000 strokes : -9.4
 Tolerance
 cm3/1000 str. + : 2.0
 Check tolerance
 cm3/1000S. + : 2.0
 Shutoff solenoid
 Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
 Del. quantity
 cm3/1000 strokes : -0.8
 Tolerance
 cm3/1000 str. + : 0.1
 Check tolerance
 cm3/1000S. + : 0.1
 Shutoff solenoid
 Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1250
 Del. quantity
 cm3/1000 strokes : 5.0
 Tolerance
 cm3/1000 str. + : 3.0
 Check tolerance
 cm3/1000S. + : 3.0
 Shutoff solenoid
 Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
 Tolerance mm + : 0.2
 Check
 tolerance mm + : 0.3
 Shutoff solenoid
 Volt : 12

EXHAUST-GAS RECIRCULATION

Rated speed rpm : 1250
 Del. quantity
 cm3/1000 strokes : 23.0
 Tolerance
 cm3/1000 str. + : 0.5
 Check tolerance
 cm3/1000S. + : 2.5
 Shutoff solenoid
 Volt : 12

START TRANSITION

Rated speed rpm : 350
 Del. quantity
 cm3/1000 strokes : 30.0
 Tolerance
 cm3/1000 str. + : 15.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 200
 Del. quantity
 cm3/1000 strokes : 70.0
 Tolerance
 cm3/1000 str. + : 25.0
 Shutoff solenoid
 Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,7
 Tolerance mm + : +0,1
 Dimension KF mm : 6,0
 Tolerance mm + : +0,2
 Dimension MS mm : 0,9
 Tolerance mm + : +0,2

MICROSWITCH SET

mm : 0,8...3,0
 : ARF 12,0

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 07.03.95
Test oil : ISO 4113

Part no. : 0 460 494 405
Pump designation : VE4/9F2400R486-2

Customer-spec. information
Customer : RENAULT
Motor : G8T - 790
Power KW : 60.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C +- : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar +- : 0.05

Test nozzle holder
assembly : 1 688 901 022

Opening pressure
bar : 130
Tolerance bar +- : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1250

Setting mm : 2.5
Tolerance mm +- : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250
Supply pump
pressure bar : 6.2
Tolerance bar +- : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : 37.4
Tolerance
cm3/1000 str. +- : 0.5
Spread
cm3/1000 strokes : 2.5
Shutoff solenoid
Volt : 12

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 450
Del. quantity
cm3/1000 strokes : 8.0
Tolerance
cm3/1000 str. +- : 2.0
Shutoff solenoid
Volt : 12

IDLE DELIVERY

Rated speed rpm : 385
Del. quantity
cm3/1000 strokes : 14.0
Tolerance
cm3/1000 str. +- : 2.0
Spread
cm3/1000 strokes : 2.5
Shutoff solenoid
Volt : 12

HIGH IDLE SETTING

Rated speed rpm : 435
Del. quantity
cm3/1000 strokes : 12.0

Tolerance
cm³/1000 str. + : 2.0
Shutoff solenoid
Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2600
Del. quantity
cm³/1000 strokes : 23.0
Tolerance
cm³/1000 str. + : 3.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 str. + : 15.0
Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -7.1
Tolerance
cm³/1000 str. + : 1.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 str. + : 0.1
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -0.8
Tolerance
cm³/1000 str. + : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2000
SV travel mm : 6.4
Tolerance mm + : 0.4
Check
tolerance mm + : 0.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 1000

SV travel mm : 1.0
Tolerance mm + : 0.4
Check
tolerance mm + : 0.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 750

SV travel mm : 1.0
Tolerance mm + : 1.2
Check
tolerance mm + : 1.2
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2000
Supply pump
pressure bar : 8.2
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Supply pump
pressure bar : 4.7
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2300
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s + : 41.6

Check tolerance
ccm/10s + : 41.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s + : 22.2

Check tolerance
ccm/10s + : 22.2
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2600
Del. quantity
cm3/1000 strokes : 23.0
Tolerance
cm3/1000 str. +- : 3.0
Check tolerance
cm3/1000S. + : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2500
Del. quantity
cm3/1000 strokes : 35.5
Tolerance
cm3/1000 str. +- : 4.0
Check tolerance
cm3/1000S. + : 5.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2800
Del. quantity
cm3/1000 strokes : 2.5
Tolerance
cm3/1000 str. +- : 2.5
Check tolerance
cm3/1000S. + : 2.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 2300
Del. quantity
cm3/1000 strokes : 41.0
Tolerance
cm3/1000 str. +- : 1.0
Check tolerance
cm3/1000S. + : 2.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 1000

Del. quantity
cm3/1000 strokes : 37.7
Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. + : 2.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 2000
Del. quantity
cm3/1000 strokes : 40.3
Tolerance
cm3/1000 str. +- : 1.0
Check tolerance
cm3/1000S. + : 2.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Del. quantity
cm3/1000 strokes : 36.5
Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. + : 2.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : 37.4
Tolerance
cm3/1000 str. +- : 0.5
Check tolerance
cm3/1000S. + : 2.3
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 385
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. + : 1.5

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 385
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. +- : 1.5

Check tolerance
cm3/1000s. + - : 1.5

CHECKING LOAD-DEPENDENT
START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : -9.4
Tolerance
cm3/1000 str. + - : 2.0
Check tolerance
cm3/1000s. + - : 2.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : -0.8
Tolerance
cm3/1000 str. + - : 0.1
Check tolerance
cm3/1000s. + - : 0.1
Shutoff solenoid
Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : 5.0
Tolerance
cm3/1000 str. + - : 3.0
Check tolerance
cm3/1000s. + - : 3.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Tolerance mm + - : 0.2
Check
tolerance mm + - : 0.3
Shutoff solenoid
Volt : 12

EXHAUST-GAS RECIRCULATION

Rated speed rpm : 1250

Del. quantity
cm3/1000 strokes : 23.0
Tolerance
cm3/1000 str. + - : 0.5
Check tolerance
cm3/1000s. + - : 2.5
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 350
Del. quantity
cm3/1000 strokes : 30.0
Tolerance
cm3/1000 str. + - : 15.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 200
Del. quantity
cm3/1000 strokes : 70.0
Tolerance
cm3/1000 str. + - : 25.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,7
Tolerance mm + - : +0,1
Dimension KF mm : KOT
Dimension MS mm : 0,9
Tolerance mm + - : +0,2

MICROSWITCH
SET

mm : 0,8...3,0
 : ARF 12,0

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.03.95
Test oil : ISO 4113

Part no. : 0 460 494 406
Pump designation : VE4/9F2400R486-3

Customer-spec. information
Customer : RENAULT
Motor : G8T-790 CA
Power KW : 60.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C +- : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar +- : 0.05

Test nozzle holde
assembly : 1 688 901 022

Opening pressure
bar : 130
Tolerance bar +- : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1250
Setting mm : 2.5
Tolerance mm +- : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250
Supply pump
pressure bar : 6.2
Tolerance bar +- : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : 37.4
Tolerance
cm3/1000 str. +- : 0.5
Spread
cm3/1000 strokes : 2.5
Shutoff solenoid
Volt : 12

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 450
Del. quantity
cm3/1000 strokes : 8.0
Tolerance
cm3/1000 str. +- : 2.0
Shutoff solenoid
Volt : 12

IDLE DELIVERY

Rated speed rpm : 385
Del. quantity
cm3/1000 strokes : 14.0
Tolerance
cm3/1000 str. +- : 2.0
Spread
cm3/1000 strokes : 2.5
Shutoff solenoid
Volt : 12

HIGH IDLE SETTING

Rated speed rpm : 435
Del. quantity
cm3/1000 strokes : 12.0

Tolerance
cm³/1000 str. ± : 2.0
Shutoff solenoid
Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2600
Del. quantity
cm³/1000 strokes : 23.0
Tolerance
cm³/1000 str. ± : 3.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 str. ± : 15.0
Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -7.1
Tolerance
cm³/1000 str. ± : 1.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 str. ± : 0.1
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -0.8
Tolerance
cm³/1000 str. ± : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2000
SV travel mm : 6.4
Tolerance mm ± : 0.4
Check
tolerance mm ± : 0.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 1000

SV travel mm : 1.0
Tolerance mm ± : 0.4
Check
tolerance mm ± : 0.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 750

SV travel mm : 1.0
Tolerance mm ± : 1.2
Check
tolerance mm ± : 1.2
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2000
Supply pump
pressure bar : 8.2
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Supply pump
pressure bar : 4.7
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2300
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s ± : 41.6

Check tolerance
ccm/10s +- : 41.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s +- : 22.2

Check tolerance
ccm/10s +- : 22.2
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2600
Del. quantity
cm3/1000 strokes : 23.0
Tolerance
cm3/1000 str. +- : 3.0
Check tolerance
cm3/1000S. +- : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2500
Del. quantity
cm3/1000 strokes : 35.5
Tolerance
cm3/1000 str. +- : 4.0
Check tolerance
cm3/1000S. +- : 5.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2800
Del. quantity
cm3/1000 strokes : 2.5
Tolerance
cm3/1000 str. +- : 2.5
Check tolerance
cm3/1000S. +- : 2.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 2300
Del. quantity
cm3/1000 strokes : 41.0
Tolerance
cm3/1000 str. +- : 1.0
Check tolerance
cm3/1000S. +- : 2.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 1000

Del. quantity
cm3/1000 strokes : 37.7
Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. +- : 2.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 2000
Del. quantity
cm3/1000 strokes : 40.3
Tolerance
cm3/1000 str. +- : 1.0
Check tolerance
cm3/1000S. +- : 2.3
Shutoff solenoid
volt : 12

Rated speed rpm : 750
Del. quantity
cm3/1000 strokes : 36.5
Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. +- : 2.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : 37.4
Tolerance
cm3/1000 str. +- : 0.5
Check tolerance
cm3/1000S. +- : 2.3
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 385
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. +- : 1.5
Spread
cm3/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 385
Del. quantity
cm3/1000 strokes : 1.5

Tolerance
 cm3/1000 str. +- : 1.5
 Spread
 cm3/1000 strokes : 5.0
 Check tolerance
 cm3/1000S. +- : 1.5
 Spread
 cm3/1000 strokes : 5.0

CHECKING LOAD-DEPENDENT
 START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1250
 Del. quantity
 cm3/1000 strokes : -9.4
 Tolerance
 cm3/1000 str. +- : 2.0
 Check tolerance
 cm3/1000S. +- : 2.0
 Shutoff solenoid
 Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
 Del. quantity
 cm3/1000 strokes : -0.8
 Tolerance
 cm3/1000 str. +- : 0.1
 Check tolerance
 cm3/1000S. +- : 0.1
 Shutoff solenoid
 Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1250
 Del. quantity
 cm3/1000 strokes : 5.0
 Tolerance
 cm3/1000 str. +- : 3.0
 Check tolerance
 cm3/1000S. +- : 3.0
 Shutoff solenoid
 Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
 Tolerance mm +- : 0.2
 Check
 tolerance mm +- : 0.3

Shutoff solenoid
 Volt : 12

EXHAUST-GAS RECIRCULATION

Rated speed rpm : 1250
 Del. quantity
 cm3/1000 strokes : 23.0
 Tolerance
 cm3/1000 str. +- : 0.5
 Check tolerance
 cm3/1000S. +- : 2.5
 Shutoff solenoid
 Volt : 12

START TRANSITION

Rated speed rpm : 350
 Del. quantity
 cm3/1000 strokes : 30.0
 Tolerance
 cm3/1000 str. +- : 15.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 200
 Del. quantity
 cm3/1000 strokes : 70.0
 Tolerance
 cm3/1000 str. +- : 25.0
 Shutoff solenoid
 Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,7
 Tolerance mm +- : +-0,1
 Dimension KF mm : KOT
 Dimension MS mm : 0,9
 Tolerance mm +- : +-0,2

MICROSWITCH
 SET

mm : 0,8...3,0
 : ARF 12,0

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 02.01.96
Test oil : ISO 4113
Part no. : 0 460 414 096
Pump designation : VE4/11F2100R493

Customer-spec. information

Customer : FIAT-AUTO
Motor : M711 KT 19.0
Power KW : 72.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 55
Tolerance °C ± : 1

Overflow
restriction mm : 0.75

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 116

Opening pressure
bar : 207
Tolerance bar ± : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1500
Aneroid pressure
hPa : 1000
Setting mm : 6.2
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 12
KSB/AFB Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1500
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 7.3
Tolerance bar ± : 0.2
Shutoff solenoid
Volt : 12
KSB/AFB Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1750
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 63.0
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 4.5
Shutoff solenoid
Volt : 12
KSB/AFB Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 44.5
Tolerance
cm³/1000 str. ± : 0.5
Shutoff solenoid
Volt : 12
Check tolerance
cm³/1000S. : 4.5
KSB/AFB Volt : 12

IDLE SETTING

Rated speed rpm : 450
 Del. quantity
 cm³/1000 strokes : 8.0
 Tolerance
 cm³/1000 str. ± : 2.0
 Shutoff solenoid
 Volt : 12
 Spread
 cm³/1000 strokes : 6.0
 Check tolerance
 cm³/1000S. : 6.5
 KSB/AFB Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2400
 Pressure hPa : 1000
 Del. quantity
 cm³/1000 strokes : 32.0
 Tolerance
 cm³/1000 str. ± : 2.0
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 70.0
 Tolerance
 cm³/1000 str. ± : 15.0
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

SET GRADUATED STARTING DELIVERY CONTROL LEVER, IDLE STOP

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 32.0
 Tolerance
 cm³/1000 str. ± : 1.0
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1500
 Del. quantity
 cm³/1000 strokes : -9.0
 Tolerance
 cm³/1000 str. ± : 1.0
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1500
 Del. quantity
 cm³/1000 strokes : -0.2
 Tolerance
 cm³/1000 str. ± : 0.1
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
 Del. quantity
 cm³/1000 strokes : -0.6
 Tolerance
 cm³/1000 str. ± : 0.1
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2000
 Aneroid pressure
 hPa : 1000
 SV travel mm : 8.1
 Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.9
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

Rated speed rpm : 750
 Aneroid pressure
 hPa : 1000
 SV travel mm : 2.3
 Tolerance mm ± : 0.4

Check
 tolerance mm \pm : 0.9
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12
 Rated speed rpm : 450
 Aneroid pressure
 hPa : 1000
 SV travel mm : 3.0
 Tolerance mm \pm : 0.1
 Check
 tolerance mm \pm : 1.0
 Shutoff solenoid
 Volt : 12
 Rated speed rpm : 1000
 Aneroid pressure
 hPa : 1000
 SV travel mm : 4.6
 Tolerance mm \pm : 1.0
 Check
 tolerance mm \pm : 1.2
 Shutoff solenoid
 Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2100
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 8.5
 Tolerance bar \pm : 0.3
 Shutoff solenoid
 Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 750
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 5.5
 Tolerance bar \pm : 0.3
 Shutoff solenoid
 Volt : 12

KSB/AFB Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2100
 Aneroid pressure
 hPa : 1000
 Overflow quantity
 ccm/10s : 138.8

Tolerance
 ccm/10s \pm : 41.6

Check tolerance
 ccm/10s \pm : 41.6
 Shutoff solenoid
 Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 750
 Aneroid pressure
 hPa : 1000
 Overflow quantity
 ccm/10s : 111.1
 Tolerance
 ccm/10s \pm : 22.2

Check tolerance
 ccm/10s \pm : 22.2
 Shutoff solenoid
 Volt : 12

KSB/AFB Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2400
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 32.0
 Tolerance
 cm³/1000 str. \pm : 2.0
 Check tolerance
 cm³/1000s. \pm : 6.0
 Shutoff solenoid
 Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 2500
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 20.0
 Check tolerance
 cm³/1000s. \pm : 6.0
 Shutoff solenoid
 Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 2300
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 44.0
 Tolerance
 cm³/1000 str. \pm : 4.0

Shutoff solenoid
 Volt : 12

 KSB/AFB Volt : 12

 Rated speed rpm : 2650
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. +- : 1.5
 Check tolerance
 cm3/1000S. +- : 1.5
 Shutoff solenoid
 Volt : 12

 KSB/AFB Volt : 12

 Rated speed rpm : 750
 Aneroid pressure
 hPa : 400
 Del. quantity
 cm3/1000 strokes : 64.0
 Tolerance
 cm3/1000 str. +- : 0.5
 Check tolerance
 cm3/1000S. +- : 4.0
 Shutoff solenoid
 Volt : 12

 KSB/AFB Volt : 12

 Rated speed rpm : 2100
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm3/1000 strokes : 61.0
 Tolerance
 cm3/1000 str. +- : 2.0
 Check tolerance
 cm3/1000S. +- : 4.0
 Shutoff solenoid
 Volt : 12

 KSB/AFB Volt : 12

 Rated speed rpm : 550
 Del. quantity
 cm3/1000 strokes : 47.5
 Tolerance
 cm3/1000 str. +- : 3.0
 Shutoff solenoid
 Volt : 12

 KSB/AFB Volt : 12

 Rated speed rpm : 1500
 Aneroid pressure
 hPa : 1000

Del. quantity
 cm3/1000 strokes : 63.5
 Tolerance
 cm3/1000 str. +- : 2.5
 Check tolerance
 cm3/1000S. +- : 4.0
 Shutoff solenoid
 Volt : 12

 KSB/AFB Volt : 12

 Rated speed rpm : 750
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm3/1000 strokes : 75.0
 Tolerance
 cm3/1000 str. +- : 4.5
 Shutoff solenoid
 Volt : 12

 KSB/AFB Volt : 12

 Rated speed rpm : 1750
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm3/1000 strokes : 63.0
 Tolerance
 cm3/1000 str. +- : 0.5
 Check tolerance
 cm3/1000S. +- : 3.5
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 450
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. +- : 1.5
 Check tolerance
 cm3/1000S. +- : 1.5

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 450
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. +- : 1.5
 Check tolerance
 cm3/1000S. +- : 1.5

IDLE DELIVERY

Rated speed rpm : 500
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000S. + : 1.5
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

Rated speed rpm : 470
 Del. quantity
 cm³/1000 strokes : 3.0
 Tolerance
 cm³/1000 str. + : 3.0
 Check tolerance
 cm³/1000S. + : 4.0
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

CHECKING LOAD-DEPENDENT START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1500
 Del. quantity
 cm³/1000 strokes : -9.0
 Tolerance
 cm³/1000 str. + : 3.0
 Check tolerance
 cm³/1000S. + : 4.0
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
 Del. quantity
 cm³/1000 strokes : -0.6
 Tolerance
 cm³/1000 str. + : 0.1
 Check tolerance
 cm³/1000S. + : 0.1
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

DELIVERY DIFFERENCE

J05

Rated speed rpm : 1500
 Del. quantity
 cm³/1000 strokes : 5.0
 Tolerance
 cm³/1000 str. + : 1.0
 Check tolerance
 cm³/1000S. + : 1.0
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
 Tolerance mm + : 0.4
 Check
 tolerance mm + : 0.4
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

EXHAUST-GAS RECIRCULATION

Rated speed rpm : 1000
 Del. quantity
 cm³/1000 strokes : 17.9
 Tolerance
 cm³/1000 str. + : 1.0
 Check tolerance
 cm³/1000S. + : 2.5
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

START TRANSITION

Rated speed rpm : 450
 Del. quantity
 cm³/1000 strokes : 60.0
 Tolerance
 cm³/1000 str. + : 15.0
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

Rated speed rpm : 250
 Del. quantity
 cm³/1000 strokes : 85.0
 Tolerance
 cm³/1000 str. + : 15.0
 Shutoff solenoid
 Volt : 12

KSB/AFB Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : K1
Dimension KF mm : 5,4
Tolerance mm \pm : $\pm 0,2$

POTENTIOMETER
SET

1. measurement
voltage Volt : 5,0
1. measurement
voltage Volt : 2,0

MICROSWITCH
SET

mm : GST 76,9
: ARF 12,0

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 43,0..45,0

Control lever
position YB mm : 54,8..65,2

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 13.03.95
Test oil : ISO 4113

Part no. : 0 460 414 125
Pump designation : VE4/11F2100R493-1

Customer-spec. information

Customer : FIAT-AUTO
Motor : M711 NT 19.L
Power KW : 70.0

TEST BENCH REQUIREMENTS

Calibrating-oil return

temperature °C : 55
Tolerance °C +- : 1

Overflow restriction mm : 0.75

Inlet press. bar : 0.35
Tolerance bar +- : 0.05

Test nozzle holde assembly : 1 688 901 116

Opening pressure bar : 207
Tolerance bar +- : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1500
Aneroid pressure hPa : 1000

Setting mm : 6.2
Tolerance mm +- : 0.2
Shutoff solenoid Volt : 12

KSB/AFB Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1500
Aneroid pressure hPa : 1000

Supply pump pressure bar : 7.3
Tolerance bar +- : 0.2
Shutoff solenoid Volt : 12

KSB/AFB Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1750
Aneroid pressure hPa : 1000

Del. quantity cm3/1000 strokes : 63.0
Tolerance cm3/1000 str. +- : 0.5

Spread cm3/1000 strokes : 4.0
Check tolerance cm3/1000S. : 4.5
Shutoff solenoid Volt : 12

KSB/AFB Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 750
Del. quantity cm3/1000 strokes : 44.5

Tolerance cm3/1000 str. +- : 0.5
Shutoff solenoid Volt : 12

Check tolerance cm3/1000S. : 4.5

KSB/AFB Volt : 12

IDLE SETTING

Rated speed rpm : 450
 Del. quantity
 cm³/1000 strokes : 8.0
 Tolerance
 cm³/1000 str. ± : 2.0
 Shutoff solenoid
 Volt : 12
 Spread
 cm³/1000 strokes : 6.0
 Check tolerance
 cm³/1000s. : 6.5
 KSB/AFB Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2400
 Pressure hPa : 1000
 Del. quantity
 cm³/1000 strokes : 32.0
 Tolerance
 cm³/1000 str. ± : 2.0
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 70.0
 Tolerance
 cm³/1000 str. ± : 15.0
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

SETTING GRAD. STARTING FUEL DELIVERY FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 32.0
 Tolerance
 cm³/1000 str. ± : 1.0
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1500
 Del. quantity
 cm³/1000 strokes : -9.0
 Tolerance
 cm³/1000 str. ± : 1.0
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1500
 Del. quantity
 cm³/1000 strokes : -0.2
 Tolerance
 cm³/1000 str. ± : 0.1
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
 Del. quantity
 cm³/1000 strokes : -0.6
 Tolerance
 cm³/1000 str. ± : 0.1
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2000
 Aneroid pressure
 hPa : 1000
 SV travel mm : 8.1
 Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.9
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

Rated speed rpm : 750
 Aneroid pressure
 hPa : 1000

SV travel mm : 2.3
 Tolerance mm ± : 0.4

Check
 tolerance mm +- : 0.9
 Shutoff solenoid
 Volt : 12

 KSB/AFB Volt : 12
 Setting point KSB
 Rated speed rpm : 450
 Aneroid pressure
 hPa : 1000

 SV travel mm : 3.0
 Tolerance mm +- : 0.1
 Check
 tolerance mm +- : 1.0
 Shutoff solenoid
 Volt : 12

 Rated speed rpm : 1000
 Aneroid pressure
 hPa : 1000

 SV travel mm : 4.6
 Tolerance mm +- : 1.0
 Shutoff solenoid
 Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2100
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 8.5
 Tolerance bar +- : 0.3
 Shutoff solenoid
 Volt : 12

 KSB/AFB Volt : 12

 Rated speed rpm : 750
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 5.5
 Tolerance bar +- : 0.3
 Shutoff solenoid
 Volt : 12

 KSB/AFB Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2100
 Aneroid pressure
 hPa : 1000
 Overflow quantity
 ccm/10s : 138.8
 Tolerance
 ccm/10s +- : 41.6

Check tolerance
 ccm/10s +- : 41.6
 Shutoff solenoid
 Volt : 12

 KSB/AFB Volt : 12

 Rated speed rpm : 750
 Aneroid pressure
 hPa : 1000
 Overflow quantity
 ccm/10s : 111.1
 Tolerance
 ccm/10s +- : 22.2

 Check tolerance
 ccm/10s +- : 22.2
 Shutoff solenoid
 Volt : 12

 KSB/AFB Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2400
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 32.0
 Tolerance
 cm³/1000 str. +- : 2.0
 Check tolerance
 cm³/1000S. +- : 5.0
 Shutoff solenoid
 Volt : 12

 KSB/AFB Volt : 12

 Rated speed rpm : 2500
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 20.0
 Check tolerance
 cm³/1000S. +- : 6.0
 Shutoff solenoid
 Volt : 12

 KSB/AFB Volt : 12

 Rated speed rpm : 2300
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 44.0
 Tolerance
 cm³/1000 str. +- : 4.0
 Shutoff solenoid
 Volt : 12

KSB/AFB Volt	:	12
Rated speed rpm	:	2620
Aneroid pressure hPa	:	1000
Del. quantity cm3/1000 strokes	:	1.5
Tolerance cm3/1000 str. +- :	:	1.5
Check tolerance cm3/1000S. +- :	:	1.5
Shutoff solenoid Volt	:	12
KSB/AFB Volt	:	12
Rated speed rpm	:	750
Aneroid pressure hPa	:	400
LDA/HBA stroke mm	:	7.4
Del. quantity cm3/1000 strokes	:	64.0
Tolerance cm3/1000 str. +- :	:	0.5
Check tolerance cm3/1000S. +- :	:	4.0
Shutoff solenoid Volt	:	12
KSB/AFB Volt	:	12
Rated speed rpm	:	2100
Aneroid pressure hPa	:	1000
Del. quantity cm3/1000 strokes	:	61.0
Tolerance cm3/1000 str. +- :	:	2.0
Check tolerance cm3/1000S. +- :	:	4.0
Shutoff solenoid Volt	:	12
KSB/AFB Volt	:	12
Rated speed rpm	:	550
Del. quantity cm3/1000 strokes	:	47.5
Tolerance cm3/1000 str. +- :	:	3.0
Shutoff solenoid Volt	:	12
KSB/AFB Volt	:	12
Rated speed rpm	:	1500

Aneroid pressure hPa	:	1000
Del. quantity cm3/1000 strokes	:	63.5
Tolerance cm3/1000 str. +- :	:	2.5
Check tolerance cm3/1000S. +- :	:	4.0
Shutoff solenoid Volt	:	12
KSB/AFB Volt	:	12
Rated speed rpm	:	750
Aneroid pressure hPa	:	1000
Del. quantity cm3/1000 strokes	:	75.0
Tolerance cm3/1000 str. +- :	:	4.5
Shutoff solenoid Volt	:	12
KSB/AFB Volt	:	12
Rated speed rpm	:	1750
Aneroid pressure hPa	:	1000
Del. quantity cm3/1000 strokes	:	63.0
Tolerance cm3/1000 str. +- :	:	0.5
Check tolerance cm3/1000S. +- :	:	3.5
Shutoff solenoid Volt	:	12

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm	:	450
Del. quantity cm3/1000 strokes	:	1.5
Tolerance cm3/1000 str. +- :	:	1.5
Check tolerance cm3/1000S. +- :	:	1.5
Spread cm3/1000 strokes	:	5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm	:	450
Del. quantity cm3/1000 strokes	:	1.5
Tolerance cm3/1000 str. +- :	:	1.5

Check tolerance
cm3/1000S. +- : 1.5

IDLE DELIVERY

Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. +- : 1.5
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 470
Del. quantity
cm3/1000 strokes : 3.0
Tolerance
cm3/1000 str. +- : 3.0
Check tolerance
cm3/1000S. +- : 4.0
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

CHECKING LOAD-DEPENDENT START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm3/1000 strokes : -9.0
Tolerance
cm3/1000 str. +- : 3.0
Check tolerance
cm3/1000S. +- : 4.0
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm3/1000 strokes : -0.6
Tolerance
cm3/1000 str. +- : 0.1
Check tolerance
cm3/1000S. +- : 0.1

Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm3/1000 strokes : 5.0
Tolerance
cm3/1000 str. +- : 1.0
Check tolerance
cm3/1000S. +- : 1.0
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Tolerance mm +- : 0.4
Check
tolerance mm +- : 0.4
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

EXHAUST-GAS RECIRCULATION

Rated speed rpm : 1000
Del. quantity
cm3/1000 strokes : 17.9
Tolerance
cm3/1000 str. +- : 1.0
Check tolerance
cm3/1000S. +- : 2.5
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

START TRANSITION

Rated speed rpm : 450
Del. quantity
cm3/1000 strokes : 60.0
Tolerance
cm3/1000 str. +- : 15.0
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 250

Del. quantity
cm³/1000 strokes : 85.0
Tolerance
cm³/1000 str. ± : 15.0
Shutoff solenoid
Volt : 12
KSB/AFB Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/
HBA stroke mm : 7.4
Dimension K mm : K1
Dimension KF mm : KOT
MS1 dimension mm : 1,2
Tolerance mm ± : +0,15/-0,1

MICROSWITCH
SET

mm : ARF 12,0

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 43,0..45,0

Control lever
position YB mm : 54,8..65,2

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.06.95
Test oil : ISO 4113
Part no. : 0 460 414 121
Pump designation : VE4/11F1900R494-1

Customer-spec. information
Customer : IVECO-SOFIM
Motor : 8140.47.2585

TEST BENCH REQUIREMENTS

Overflow restriction mm : 0.75

Inlet press. bar : 0.35
Tolerance bar +- : 0.05

Test nozzle holder assembly : 1 688 901 027

Opening pressure bar : 250
Tolerance bar +- : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1200
Aneroid pressure hPa : 1000

Setting mm : 1.8
Tolerance mm +- : 0.1
Shutoff solenoid Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1200
Aneroid pressure hPa : 1000
Supply pump pressure bar : 6.0
Tolerance bar +- : 0.3
Shutoff solenoid Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1400
Aneroid pressure hPa : 1000
Del. quantity cm³/1000 strokes : 56.0
Tolerance cm³/1000 str. +- : 0.5
Spread cm³/1000 strokes : 4.0
Check tolerance cm³/1000S. : 4.5
Shutoff solenoid Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 550
Del. quantity cm³/1000 strokes : 27.0
Tolerance cm³/1000 str. +- : 0.5
Shutoff solenoid Volt : 12
Check tolerance cm³/1000S. : 4.5

IDLE SETTING

Rated speed rpm : 325
Del. quantity cm³/1000 strokes : 17.0
Tolerance cm³/1000 str. +- : 2.0
Shutoff solenoid Volt : 12
Spread cm³/1000 strokes : 6.0
Check tolerance cm³/1000S. : 6.5

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2100
 Pressure hPa : 1000
 Del. quantity
 cm³/1000 strokes : 37.0
 Tolerance
 cm³/1000 str. +- : 3.0
 Shutoff solenoid
 Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 65.0
 Tolerance
 cm³/1000 str. +- : 25.0
 Shutoff solenoid
 Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1400
 Pressure hPa : 1000
 Del. quantity
 cm³/1000 strokes : -26.0
 Tolerance
 cm³/1000 str. +- : 1.0
 Shutoff solenoid
 Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1400
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : -0.2
 Tolerance
 cm³/1000 str. +- : 0.1
 Shutoff solenoid
 Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1400
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : -0.8
 Tolerance
 cm³/1000 str. +- : 0.1

Shutoff solenoid
 Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1600
 Aneroid pressure
 hPa : 1000

SV travel mm : 4.3
 Tolerance mm +- : 0.4
 Check
 tolerance mm +- : 0.7
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1100
 Aneroid pressure
 hPa : 1000

SV travel mm : 1.0
 Tolerance mm +- : 0.4
 Check
 tolerance mm +- : 0.7
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1900
 Aneroid pressure
 hPa : 1000

SV travel mm : 4.9
 Tolerance mm +- : 0.4
 Check
 tolerance mm +- : 0.7
 Shutoff solenoid
 Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1900
 Aneroid pressure
 hPa : 1000

Supply pump
 pressure bar : 8.5
 Tolerance bar +- : 0.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 700
 Aneroid pressure
 hPa : 1000

Supply pump
 pressure bar : 4.1
 Tolerance bar +- : 0.3
 Shutoff solenoid
 Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 1900
 Aneroid pressure
 hPa : 1000
 Overflow quantity
 ccm/10s : 138.8
 Tolerance
 ccm/10s +- : 41.6

Check tolerance
 ccm/10s +- : 41.6
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 700
 Aneroid pressure
 hPa : 1000
 Overflow quantity
 ccm/10s : 111.1
 Tolerance
 ccm/10s +- : 22.2

Check tolerance
 ccm/10s +- : 22.2
 Shutoff solenoid
 Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2100
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm3/1000 strokes : 37.0
 Tolerance
 cm3/1000 str. +- : 3.0
 Check tolerance
 cm3/1000s. +- : 4.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2200
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm3/1000 strokes : 18.0
 Check tolerance
 cm3/1000s. +- : 6.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2280
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. +- : 1.5

Check tolerance
 cm3/1000s. +- : 1.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 700
 Aneroid pressure
 hPa : 400
 Del. quantity
 cm3/1000 strokes : 44.0
 Tolerance
 cm3/1000 str. +- : 0.5
 Check tolerance
 cm3/1000s. +- : 4.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1900
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm3/1000 strokes : 58.5
 Tolerance
 cm3/1000 str. +- : 2.5
 Check tolerance
 cm3/1000s. +- : 3.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1200
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm3/1000 strokes : 56.0
 Tolerance
 cm3/1000 str. +- : 2.5
 Check tolerance
 cm3/1000s. +- : 4.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1750
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm3/1000 strokes : 58.0
 Tolerance
 cm3/1000 str. +- : 2.5
 Check tolerance
 cm3/1000s. +- : 3.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 700
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm3/1000 strokes : 59.0
 Tolerance
 cm3/1000 str. +- : 4.5

Check tolerance
 cm3/1000S. +- : 5.5
 Shutoff solenoid
 Volt : 12

 Rated speed rpm : 1400
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm3/1000 strokes : 56.0
 Tolerance
 cm3/1000 str. +- : 0.5
 Check tolerance
 cm3/1000S. +- : 3.5
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 325
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. +- : 1.5
 Check tolerance
 cm3/1000S. +- : 1.5

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 325
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. +- : 1.5
 Check tolerance
 cm3/1000S. +- : 1.5

IDLE DELIVERY

Rated speed rpm : 450
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. +- : 1.5
 Check tolerance
 cm3/1000S. +- : 1.5
 Shutoff solenoid
 Volt : 12

CHECKING LOAD-DEPENDENT
START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1400
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm3/1000 strokes : -28.0
 Tolerance
 cm3/1000 str. +- : 3.0
 Check tolerance
 cm3/1000S. +- : 4.0
 Shutoff solenoid
 Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1400
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm3/1000 strokes : -0.8
 Tolerance
 cm3/1000 str. +- : 0.1
 Check tolerance
 cm3/1000S. +- : 0.1
 Shutoff solenoid
 Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1400
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. +- : 1.5
 Check tolerance
 cm3/1000S. +- : 1.5
 Shutoff solenoid
 Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1400
 Aneroid pressure
 hPa : 1000
 Tolerance mm +- : 0.2
 Check
 tolerance mm +- : 0.4
 Shutoff solenoid
 Volt : 12

START TRANSITION

Rated speed rpm : 500
 Del. quantity
 cm3/1000 strokes : 22.0
 Tolerance
 cm3/1000 str. +- : 8.0

Shutoff solenoid
Volt : 12

Rated speed rpm : 200
Del. quantity
cm³/1000 strokes : 80.0
Tolerance
cm³/1000 str. ± : 25.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,3
Tolerance mm ± : ±0,1
Dimension KF mm : 8,4
Tolerance mm ± : ±0,2
MS1 dimension mm : 1,7
Tolerance mm ± : +0,15/-0,1
KSB travel mm : 7,0

CONTROL LEVER POSITION SET

Control lever
position YA mm : 37,9..39,9

Control lever
position YB mm : 43,7..48,9

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.11.93
Test oil : ISO 4113
Part no. : 0 460 426 209
Pump designation : VE6/12F1200R496

Customer-spec. information
Customer : MAN
Motor : D 0826 LF 07
Power KW : 140.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 110

Opening pressure
bar : 250
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Prestroke

(as of UT) mm : 0,2
Tolerance mm ± : ±0,02
Check
tolerance mm ± : ±0,04

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 850
Aneroid pressure
hPa : 1000

Setting mm : 2.2
Tolerance mm ± : 0.2

SUPPLY PUMP PRESSURE

Rated speed rpm : 850
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 7.6
Tolerance bar ± : 0.3

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 92.0
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 4.5

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 str. ± : 0.5
Check tolerance
cm³/1000S. : 4.5

IDLE SETTING

Rated speed rpm : 250
Del. quantity
cm³/1000 strokes : 20.0
Tolerance
cm³/1000 str. ± : 3.5
Spread
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 6.5

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1280
Pressure hPa : 1000
Del. quantity
cm³/1000 strokes : 65.0
Tolerance
cm³/1000 str. ± : 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 80.0
Tolerance
cm³/1000 str. ± : 20.0

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 950
Aneroid pressure
hPa : 1000
SV travel mm : 3.3
Tolerance mm ± : 0.4
Check
tolerance mm ± : 0.7

Rated speed rpm : 750
Aneroid pressure
hPa : 1000
SV travel mm : 1.0
Tolerance mm ± : 0.4
Check
tolerance mm ± : 0.7

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1200
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 9.3
Tolerance bar ± : 0.3

Rated speed rpm : 500

Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 5.8
Tolerance bar ± : 0.3

OVERFLOW QUANTITY

Rated speed rpm : 500
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s ± : 22.2

Check tolerance
ccm/10s ± : 22.2

Rated speed rpm : 1200
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s ± : 41.6

Check tolerance
ccm/10s ± : 41.6

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1280
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 65.0
Tolerance
cm³/1000 str. ± : 3.0
Check tolerance
cm³/1000S. ± : 4.5

Rated speed rpm : 1350
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 7.5
Check tolerance
cm³/1000S. ± : 7.5

Rated speed rpm : 1450
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5

Rated speed rpm : 1300

Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 48.0
Tolerance
cm³/1000 str. +- : 18.0
Check tolerance
cm³/1000S. +- : 18.0

Rated speed rpm : 500
Aneroid pressure
hPa : 450
Del. quantity
cm³/1000 strokes : 93.0
Tolerance
cm³/1000 str. +- : 0.5
Check tolerance
cm³/1000S. +- : 2.5

Rated speed rpm : 1200
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 89.4
Tolerance
cm³/1000 str. +- : 2.5
Check tolerance
cm³/1000S. +- : 4.0

Rated speed rpm : 600
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 101.0
Tolerance
cm³/1000 str. +- : 2.5
Check tolerance
cm³/1000S. +- : 4.0

Rated speed rpm : 800
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 94.6
Tolerance
cm³/1000 str. +- : 2.5
Check tolerance
cm³/1000S. +- : 4.0

Rated speed rpm : 500
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 106.6
Tolerance
cm³/1000 str. +- : 4.5
Check tolerance
cm³/1000S. +- : 6.0

Rated speed rpm : 1000

Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 92.0
Tolerance
cm³/1000 str. +- : 0.5
Check tolerance
cm³/1000S. +- : 2.5

MECHANICAL SHUTOFF

Rated speed rpm : 1200
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. +- : 1.5
Spread
cm³/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 1.5

START TRANSITION

Rated speed rpm : 430
Del. quantity
cm³/1000 strokes : 55.0
Tolerance
cm³/1000 str. +- : 15.0

Rated speed rpm : 330
Del. quantity
cm³/1000 strokes : 85.0
Tolerance
cm³/1000 str. +- : 15.0

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension KF mm : 6,0
Tolerance mm +- : +-0,2
Dimension MS mm : 1,1
Tolerance mm +- : +-0,2

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 07.06.95
Test oil : ISO 4113
Part no. : 0 460 426 244
Pump designation : VE6/12F1250R498-3

Customer-spec. information
Customer : CDC
Motor : 6 BT 5.9B

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 109

Opening pressure
bar : 207
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 1,2
Tolerance mm ± : ±0,02
Outlet : D

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 900
Aneroid pressure
hPa : 1000
Setting mm : 1.7
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 24

SUPPLY PUMP PRESSURE

Rated speed rpm : 900
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 6.2
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 24

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 850
Aneroid pressure
hPa : 1000
Del. quantity
cm3/1000 strokes : 85.0
Tolerance
cm3/1000 str. ± : 0.5
Spread
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 5.0
Shutoff solenoid
Volt : 24

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 61.0
Tolerance
cm3/1000 str. ± : 0.5
Spread
cm3/1000 strokes : 5.0
Shutoff solenoid
Volt : 24
Check tolerance
cm3/1000S. : 6.0
Check tolerance
cm3/1000S. : 5.0

IDLE SETTING

Rated speed rpm : 350
 Del. quantity
 cm³/1000 strokes : 13.0
 Tolerance
 cm³/1000 str. + : 2.0
 Shutoff solenoid
 Volt : 24
 Spread
 cm³/1000 strokes : 5.5
 Check tolerance
 cm³/1000s. : 7.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1350
 Pressure hPa : 1000
 Del. quantity
 cm³/1000 strokes : 54.0
 Tolerance
 cm³/1000 str. + : 3.0
 Shutoff solenoid
 Volt : 24

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 80.0
 Tolerance
 cm³/1000 str. + : 20.0
 Shutoff solenoid
 Volt : 24

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1000
 SV travel mm : 2.6
 Tolerance mm + : 0.4
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 500

Aneroid pressure
 hPa : 1000
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 450

SV travel mm : 2.5
 Tolerance mm + : 0.5
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 24

KSB/AFB Volt : 24

Rated speed rpm : 800
 Aneroid pressure
 hPa : 1000

SV travel mm : 1.3
 Tolerance mm + : 0.4
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 24

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 7.5
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 800
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 5.7
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 500
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 4.2
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 24

OVERFLOW QUANTITY

Rated speed rpm : 500

Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s +- : 22.2

Check tolerance
ccm/10s +- : 22.2
Shutoff solenoid
Volt : 24

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s +- : 41.6

Check tolerance
ccm/10s +- : 41.6
Shutoff solenoid
Volt : 24

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1350
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 54.0
Tolerance
cm³/1000 str. +- : 3.0
Check tolerance
cm³/1000S. +- : 8.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 1425
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 25.0
Check tolerance
cm³/1000S. +- : 15.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 1480
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 1.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 650

Aneroid pressure
hPa : 450
Del. quantity
cm³/1000 strokes : 72.0
Tolerance
cm³/1000 str. +- : 0.5
Check tolerance
cm³/1000S. +- : 4.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 82.0
Tolerance
cm³/1000 str. +- : 2.0
Check tolerance
cm³/1000S. +- : 3.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 1100
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 85.0
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 3.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 850
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 85.0
Tolerance
cm³/1000 str. +- : 0.5
Check tolerance
cm³/1000S. +- : 3.0
Shutoff solenoid
Volt : 24

MECHANICAL SHUTOFF

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 1.5

Shutoff solenoid
Volt : 24

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 1.5

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 1.5

IDLE DELIVERY

Rated speed rpm : 410
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 1.5
Shutoff solenoid
Volt : 24

START TRANSITION

Rated speed rpm : 210
Del. quantity
cm³/1000 strokes : 75.0
Tolerance
cm³/1000 str. +- : 20.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 130
Del. quantity
cm³/1000 strokes : 95.0
Tolerance
cm³/1000 str. +- : 20.0
Shutoff solenoid
Volt : 24

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,7
Tolerance mm +- : +-0,1
Dimension KF mm : 6,4
Tolerance mm +- : +-0,2
MS1 dimension mm : 1,36
Tolerance mm +- : +0,15/-0,1

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 34,8..38,8

Control lever
position YB mm : 43,6..48,8

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 28.02.96
Test oil : ISO 4113
Part no. : 0 460 426 245
Pump designation : VE6/12F1250R498-4

Customer-spec. information
Customer : CDC
Motor : 6 BT 5.9B

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 109

Opening pressure
bar : 207
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 1,4
Tolerance mm ± : ±0,02
Outlet : D

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 900
Aneroid pressure
hPa : 1000
Setting mm : 1.4
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 24

SUPPLY PUMP PRESSURE

Rated speed rpm : 900
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 6.2
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 24

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 850
Aneroid pressure
hPa : 1000
Del. quantity
cm3/1000 strokes : 83.0
Tolerance
cm3/1000 str. ± : 0.5
Spread
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 5.0
Shutoff solenoid
Volt : 24

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 69.5
Tolerance
cm3/1000 str. ± : 0.5
Spread
cm3/1000 strokes : 5.0
Shutoff solenoid
Volt : 24
Check tolerance
cm3/1000S. : 6.0
Check tolerance
cm3/1000S. : 5.0

IDLE SETTING

Rated speed rpm : 330
 Del. quantity
 cm³/1000 strokes : 9.0
 Tolerance
 cm³/1000 str. + : 2.0
 Shutoff solenoid
 Volt : 24
 Spread
 cm³/1000 strokes : 5.5
 Check tolerance
 cm³/1000S. : 7.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1380
 Pressure hPa : 1000
 Del. quantity
 cm³/1000 strokes : 63.0
 Tolerance
 cm³/1000 str. + : 3.0
 Shutoff solenoid
 Volt : 24

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 130.0
 Tolerance
 cm³/1000 str. + : 20.0
 Shutoff solenoid
 Volt : 24

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1000
 SV travel mm : 2.8
 Tolerance mm + : 0.4
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 24
 Rated speed rpm : 500

Aneroid pressure
 hPa : 1000
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 450
 SV travel mm : 2.5
 Tolerance mm + : 0.5
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 24
 KSB/AFB Volt : 24

Rated speed rpm : 800
 Aneroid pressure
 hPa : 1000
 SV travel mm : 1.0
 Tolerance mm + : 0.4
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 24

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 7.5
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 800
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 5.7
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 500
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 4.2
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 24

OVERFLOW QUANTITY

Rated speed rpm : 500

Overflow quantity
ccm/10s : 72.2
Tolerance
ccm/10s + : 22.2

Check tolerance
ccm/10s + : 22.2
Shutoff solenoid
Volt : 24

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 88.8
Tolerance
ccm/10s + : 27.7

Check tolerance
ccm/10s + : 27.7
Shutoff solenoid
Volt : 24

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1380
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 63.0
Tolerance
cm³/1000 str. + : 3.0
Check tolerance
cm³/1000S. + : 8.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 1430
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 30.0
Check tolerance
cm³/1000S. + : 15.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 1490
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 600

Aneroid pressure
hPa : 450

LDA/
HBA stroke mm : 7.0
Del. quantity
cm³/1000 strokes : 84.0
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 4.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 86.0
Tolerance
cm³/1000 str. + : 2.5
Check tolerance
cm³/1000S. + : 3.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 900
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 83.5
Tolerance
cm³/1000 str. + : 2.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 1100
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 85.5
Tolerance
cm³/1000 str. + : 2.5
Check tolerance
cm³/1000S. + : 3.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 850
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 83.0
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 3.0
Shutoff solenoid
Volt : 24

MECHANICAL SHUTOFF

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. +- : 1.5
Spread
cm³/1000 strokes : 5.0
Shutoff solenoid
Volt : 24

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 1.5
Spread
cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. +- : 1.5
Spread
cm³/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 390
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 1.5
Shutoff solenoid
Volt : 24

START TRANSITION

Rated speed rpm : 240
Del. quantity
cm³/1000 strokes : 78.0
Tolerance
cm³/1000 str. +- : 10.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 130
Del. quantity
cm³/1000 strokes : 130.0
Tolerance
cm³/1000 str. +- : 20.0
Shutoff solenoid
Volt : 24

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/
HBA stroke mm : 7.0
Dimension K mm : 3,7
Tolerance mm +- : +-0,1
Dimension KF mm : 6,4
Tolerance mm +- : +-0,2
MS1 dimension mm : 1,1
Tolerance mm +- : +-0,15/-0,1

CONTROL LEVER POSITION SET

Control lever
position YA mm : 34,8..38,8

Control lever
position YB mm : 45,3..50,5

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.02.96
Test oil : ISO 4113
Part no. : 0 460 426 249
Pump designation : VE6/12F1250R498-6

Customer-spec. information
Customer : CUMMINS
Motor : 6 BTAA 5.9B
Power KW : 133.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1
Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 109

Opening pressure
bar : 207
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

art of delivery blocking

K02

Plunger stroke mm : 1,4
Tolerance mm ± : ±0,02
Outlet : D

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 850
Aneroid pressure
hPa : 1000
Setting mm : 1.5
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 850
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 5.8
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 850
Aneroid pressure
hPa : 1000
Del. quantity
cm3/1000 strokes : 86.5
Tolerance
cm3/1000 str. ± : 0.5
Spread
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 5.0
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 60.0
Tolerance
cm3/1000 str. ± : 0.5
Spread
cm3/1000 strokes : 5.0
Shutoff solenoid
Volt : 12
Check tolerance
cm3/1000S. : 6.0

Check tolerance
cm³/1000S. : 5.0

IDLE SETTING

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 15.0
Tolerance
cm³/1000 str. + : 2.0
Shutoff solenoid
Volt : 12
Spread
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 7.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1380
Pressure hPa : 1000
Del. quantity
cm³/1000 strokes : 68.5
Tolerance
cm³/1000 str. + : 3.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 95.0
Tolerance
cm³/1000 str. + : 15.0
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
SV travel mm : 2.4
Tolerance mm + : 0.4
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Aneroid pressure
hPa : 1000

SV travel mm : 0.7
Tolerance mm + : 0.4
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 450

SV travel mm : 2.4
Tolerance mm + : 0.5
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 7.2
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 5.4
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 4.2
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 500
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s + : 22.2

Check tolerance
ccm/10s +- : 22.2
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 83.3
Tolerance
ccm/10s +- : 27.7

Check tolerance
ccm/10s +- : 27.7
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1380
Aneroid pressure
hPa : 1000
Del. quantity
cm3/1000 strokes : 68.5
Tolerance
cm3/1000 str. +- : 3.0
Check tolerance
cm3/1000S. +- : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1465
Aneroid pressure
hPa : 1000
Del. quantity
cm3/1000 strokes : 27.5
Check tolerance
cm3/1000S. +- : 10.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1530
Aneroid pressure
hPa : 1000
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. +- : 1.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Aneroid pressure
hPa : 500
Del. quantity
cm3/1000 strokes : 78.5

Tolerance
cm3/1000 str. +- : 0.5
Check tolerance
cm3/1000S. +- : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Del. quantity
cm3/1000 strokes : 85.5
Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. +- : 3.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 1100
Aneroid pressure
hPa : 1000
Del. quantity
cm3/1000 strokes : 88.0
Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. +- : 3.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 850
Aneroid pressure
hPa : 1000
Del. quantity
cm3/1000 strokes : 86.5
Tolerance
cm3/1000 str. +- : 0.5
Check tolerance
cm3/1000S. +- : 3.0
Shutoff solenoid
Volt : 12

MECHANICAL SHUTOFF

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. +- : 1.5
Spread
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. +- : 1.5
Spread
cm3/1000 strokes : 5.0

Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 350
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. +- : 1.5
Spread
cm3/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 350
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. +- : 1.5
Spread
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. +- : 1.5
Spread
cm3/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 410
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. +- : 1.5
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 240
Del. quantity
cm3/1000 strokes : 70.0
Tolerance
cm3/1000 str. +- : 15.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 130

K05

Del. quantity
cm3/1000 strokes : 100.0
Tolerance
cm3/1000 str. +- : 20.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,7
Tolerance mm +- : +-0,1
Dimension KF mm : 6,4
Tolerance mm +- : +-0,2
MS1 dimension mm : 1,3
Tolerance mm +- : +0,15/-0,1

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 34,8..38,8

Control lever
position YB mm : 41,7..48,3

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.11.95
Test oil : ISO 4113

Part no. : 0 460 494 390
Pump designation : VE4/9F2100R508-1

Customer-spec. information

Customer : FIAT-AUTO
Motor : M710 HT19.D
Power KW : 66.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.75

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 022

Opening pressure
bar : 130
Tolerance bar ± : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000
Setting mm : 2.8
Tolerance mm ± : 0.1
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 4.8
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1500
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 52.0
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 2.5
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 40.5
Tolerance
cm³/1000 str. ± : 0.5
Shutoff solenoid
Volt : 12
Check tolerance
cm³/1000S. : 2.5

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 4.5
Tolerance
cm³/1000 str. ± : 1.0

Shutoff solenoid
Volt : 12

IDLE DELIVERY

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 14.0
Tolerance
cm³/1000 str. + : 2.0
Spread
cm³/1000 strokes : 2.5
Shutoff solenoid
Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2400
Pressure hPa : 1000
Del. quantity
cm³/1000 strokes : 26.0
Tolerance
cm³/1000 str. + : 3.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 65.0
Tolerance
cm³/1000 str. + : 15.0
Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -10.0
Tolerance
cm³/1000 str. + : 1.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 str. + : 0.1

Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -0.8
Tolerance
cm³/1000 str. + : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2100
Aneroid pressure
hPa : 1000
SV travel mm : 8.2
Tolerance mm + : 0.3
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 1500
Aneroid pressure
hPa : 1000
SV travel mm : 5.4
Tolerance mm + : 0.3
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2100
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 7.8
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 1500
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 6.2
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2100
 Aneroid pressure
 hPa : 1000
 Overflow quantity
 ccm/10s : 152.7
 Tolerance
 ccm/10s +- : 41.6

Check tolerance
 ccm/10s +- : 41.6
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 750
 Aneroid pressure
 hPa : 1000
 Overflow quantity
 ccm/10s : 111.1
 Tolerance
 ccm/10s +- : 22.2

Check tolerance
 ccm/10s +- : 22.2
 Shutoff solenoid
 Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2400
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm3/1000 strokes : 26.0
 Tolerance
 cm3/1000 str. +- : 3.0
 Check tolerance
 cm3/1000S. +- : 5.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2700
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm3/1000 strokes : 3.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2500
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm3/1000 strokes : 15.0
 Tolerance
 cm3/1000 str. +- : 4.0
 Check tolerance
 cm3/1000S. +- : 5.0

Shutoff solenoid
 Volt : 12

Rated speed rpm : 750
 Aneroid pressure
 hPa : 450

LDA/
 HBA stroke mm : 6.7
 Del. quantity
 cm3/1000 strokes : 47.5
 Tolerance
 cm3/1000 str. +- : 0.5
 Check tolerance
 cm3/1000S. +- : 2.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2100
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm3/1000 strokes : 51.5
 Tolerance
 cm3/1000 str. +- : 1.5
 Check tolerance
 cm3/1000S. +- : 2.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 750
 Del. quantity
 cm3/1000 strokes : 41.0
 Tolerance
 cm3/1000 str. +- : 1.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 750
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm3/1000 strokes : 54.0
 Tolerance
 cm3/1000 str. +- : 1.5
 Check tolerance
 cm3/1000S. +- : 2.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1500
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm3/1000 strokes : 52.0
 Tolerance
 cm3/1000 str. +- : 0.5
 Check tolerance
 cm3/1000S. +- : 2.0

Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5
Spread
cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. + : 1.5
Spread
cm³/1000 strokes : 5.0

RESIDUAL QUANTITY

Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 5.5
Tolerance
cm³/1000 str. + : 1.5
Shutoff solenoid
Volt : 12

IDLE DELIVERY

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 7.0
Tolerance
cm³/1000 str. + : 3.0
Check tolerance
cm³/1000S. + : 4.5
Shutoff solenoid
Volt : 12

CHECKING LOAD-DEPENDENT
START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -12.0
Tolerance
cm³/1000 str. + : 4.0
Check tolerance
cm³/1000S. + : 4.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -0.8
Tolerance
cm³/1000 str. + : 0.1
Check tolerance
cm³/1000S. + : 0.1
Shutoff solenoid
Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : 5.0
Tolerance
cm³/1000 str. + : 1.0
Check tolerance
cm³/1000S. + : 1.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Tolerance mm + : 0.3
Check
tolerance mm + : 0.4
Shutoff solenoid
Volt : 12

EXHAUST-GAS RECIRCULATION

Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 19.5
Tolerance
cm³/1000 str. + : 1.0
Check tolerance
cm³/1000S. + : 2.0

Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 38.0
Tolerance
cm³/1000 str. \pm : 10.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 220
Del. quantity
cm³/1000 strokes : 70.0
Tolerance
cm³/1000 str. \pm : 15.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/
HBA stroke mm : 6.7
Dimension K mm : 3,3
Tolerance mm \pm : $\pm 0,1$
Dimension KF mm : 5,5
Tolerance mm \pm : $\pm 0,2$
Dimension MS mm : 1,8
Tolerance mm \pm : $\pm 0,2$

POTENTIOMETER SET

1. measurement
voltage Volt : 5,0
1. measurement
voltage Volt : 1,85

MICROSWITCH SET

: ARF 12,0

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 11.04.95
Test oil : ISO 4113

Part no. : 0 460 494 408
Pump designation : VE4/9F2100R5D8-2

Customer-spec. information

Customer : FIAT-AUTO
Motor : M710 HT19.D
Power KW : 66.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.75

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 022

Opening pressure
bar : 130
Tolerance bar ± : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000
Setting mm : 2.8
Tolerance mm ± : 0.1
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 4.8
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1500
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 52.0
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 2.5
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 40.5
Tolerance
cm³/1000 str. ± : 0.5
Shutoff solenoid
Volt : 12
Check tolerance
cm³/1000S. : 2.5

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 4.5
Tolerance
cm³/1000 str. ± : 1.0

Shutoff solenoid
Volt : 12

IDLE DELIVERY

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 14.0
Tolerance
cm³/1000 str. ± : 2.0
Spread
cm³/1000 strokes : 2.5
Shutoff solenoid
Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2400
Pressure hPa : 1000
Del. quantity
cm³/1000 strokes : 26.0
Tolerance
cm³/1000 str. ± : 3.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 65.0
Tolerance
cm³/1000 str. ± : 15.0
Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -10.0
Tolerance
cm³/1000 str. ± : 1.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 str. ± : 0.1

Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -0.8
Tolerance
cm³/1000 str. ± : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2100
Aneroid pressure
hPa : 1000
SV travel mm : 7.9
Tolerance mm ± : 0.3
Check
tolerance mm ± : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 1500
Aneroid pressure
hPa : 1000
SV travel mm : 5.2
Tolerance mm ± : 0.3
Check
tolerance mm ± : 0.7
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2100
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 7.8
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 1500
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 6.2
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2100
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 138.8
Tolerance
ccm/10s + : 41.6

Check tolerance
ccm/10s + : 41.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s + : 22.2

Check tolerance
ccm/10s + : 22.2
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2400
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 26.0
Tolerance
cm³/1000 str. + : 3.0
Check tolerance
cm³/1000S. + : 5.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2700
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 3.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 2500
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 15.0
Tolerance
cm³/1000 str. + : 4.0
Check tolerance
cm³/1000S. + : 5.0

Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Aneroid pressure
hPa : 450

LDA/
HBA stroke mm : 6.7
Del. quantity
cm³/1000 strokes : 47.5
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 2.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 2100
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 51.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 2.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 41.0
Tolerance
cm³/1000 str. + : 1.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 55.0
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 2.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 1500
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 52.0
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 2.0

Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5
Spread
cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. + : 1.5
Spread
cm³/1000 strokes : 5.0

RESIDUAL QUANTITY

Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 3.0
Tolerance
cm³/1000 str. + : 1.5
Shutoff solenoid
Volt : 12

IDLE DELIVERY

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 7.0
Tolerance
cm³/1000 str. + : 3.0
Check tolerance
cm³/1000S. + : 4.5
Shutoff solenoid
Volt : 12

CHECKING LOAD-DEPENDENT
START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -12.0
Tolerance
cm³/1000 str. + : 4.0
Check tolerance
cm³/1000S. + : 4.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -0.8
Tolerance
cm³/1000 str. + : 0.1
Check tolerance
cm³/1000S. + : 0.1
Shutoff solenoid
Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : 5.0
Tolerance
cm³/1000 str. + : 1.0
Check tolerance
cm³/1000S. + : 1.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Tolerance mm + : 0.3
Check
tolerance mm + : 0.4
Shutoff solenoid
Volt : 12

EXHAUST-GAS RECIRCULATION

Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 19.5
Tolerance
cm³/1000 str. + : 1.0
Check tolerance
cm³/1000S. + : 2.0

Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 35.0
Tolerance
cm³/1000 str. +- : 10.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 220
Del. quantity
cm³/1000 strokes : 65.0
Tolerance
cm³/1000 str. +- : 15.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/
HBA stroke mm : 6.7
Dimension K mm : 3,3
Tolerance mm +- : +0,1
Dimension KF mm : 5,5
Tolerance mm +- : +0,2
Dimension MS mm : 1,2
Tolerance mm +- : +0,2

POTENTIOMETER SET

1. measurement
voltage Volt : 5,0
1. measurement
voltage Volt : 1,85

MICROSWITCH SET

: ARF 12,0

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.07.95
Test oil : ISO 4113

Part no. : 0 460 404 077
Pump designation : VE4/10F2100R518

Customer-spec. information
Customer : IVECO-SOFIM
Motor : 8140.67.2200

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holder
assembly : 1 688 901 022

Opening pressure
bar : 130
Tolerance bar ± : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

BEGINNING OF DELIVERY

Prestroke

(as of UT) mm : 0,2
Tolerance mm ± : 0,02
Check
tolerance mm ± : 0,04

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1500
Setting mm : 5.0
Tolerance mm ± : 0.1
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1500
Supply pump
pressure bar : 6.7
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : 43.0
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 3.0
Shutoff solenoid
Volt : 12

IDLE SETTING

Rated speed rpm : 375
Del. quantity
cm³/1000 strokes : 14.0
Tolerance
cm³/1000 str. ± : 2.0
Shutoff solenoid
Volt : 12
Spread
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000s. : 3.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2300
Del. quantity
cm³/1000 strokes : 29.0

Tolerance
 cm³/1000 str. + : 2.0
 Shutoff solenoid
 Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 85.0
 Tolerance
 cm³/1000 str. + : 20.0
 Shutoff solenoid
 Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1500
 Del. quantity
 cm³/1000 strokes : -22.0
 Tolerance
 cm³/1000 str. + : 1.0
 Shutoff solenoid
 Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1500
 Del. quantity
 cm³/1000 strokes : -0.2
 Tolerance
 cm³/1000 str. + : 0.1
 Shutoff solenoid
 Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
 Del. quantity
 cm³/1000 strokes : -0.5
 Tolerance
 cm³/1000 str. + : 0.1
 Shutoff solenoid
 Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1800
 SV travel mm : 6.9
 Tolerance mm + : 0.3

Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1150

SV travel mm : 2.7
 Tolerance mm + : 0.3
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2100

SV travel mm : 7.3
 Tolerance mm + : 0.4
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1500

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2100
 Supply pump
 pressure bar : 8.8
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 600
 Supply pump
 pressure bar : 3.5
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 400

OVERFLOW QUANTITY

Rated speed rpm : 2100
 Overflow quantity
 ccm/10s : 97.2
 Tolerance
 ccm/10s + : 41.6

Check tolerance
 ccm/10s + : 41.6
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 600
 Overflow quantity
 ccm/10s : 63.8

Tolerance
ccm/10s + : 22.2

Check tolerance
ccm/10s + : 22.2

Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2300

Del. quantity
cm³/1000 strokes : 29.0

Tolerance
cm³/1000 str. + : 2.0

Check tolerance
cm³/1000S. + : 6.0

Shutoff solenoid
Volt : 12

Rated speed rpm : 2400

Del. quantity
cm³/1000 strokes : 7.0

Shutoff solenoid
Volt : 12

Rated speed rpm : 2600

Del. quantity
cm³/1000 strokes : 1.5

Tolerance
cm³/1000 str. + : 1.5

Check tolerance
cm³/1000S. + : 1.5

Shutoff solenoid
Volt : 12

Rated speed rpm : 2100

Del. quantity
cm³/1000 strokes : 44.0

Tolerance
cm³/1000 str. + : 1.5

Check tolerance
cm³/1000S. + : 2.5

Shutoff solenoid
Volt : 12

Rated speed rpm : 1000

Del. quantity
cm³/1000 strokes : 41.0

Tolerance
cm³/1000 str. + : 1.5

Check tolerance
cm³/1000S. + : 2.5

Shutoff solenoid
Volt : 12

Rated speed rpm : 600

Del. quantity
cm³/1000 strokes : 36.5

Tolerance
cm³/1000 str. + : 2.0

Check tolerance
cm³/1000S. + : 3.0

Shutoff solenoid
Volt : 12

Rated speed rpm : 1500

Del. quantity
cm³/1000 strokes : 43.0

Tolerance
cm³/1000 str. + : 0.5

Check tolerance
cm³/1000S. + : 2.0

Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 375

Del. quantity
cm³/1000 strokes : 1.5

Tolerance
cm³/1000 str. + : 1.5

Check tolerance
cm³/1000S. + : 1.5

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 375

Del. quantity
cm³/1000 strokes : 1.5

Tolerance
cm³/1000 str. + : 1.5

Check tolerance
cm³/1000S. + : 1.5

IDLE DELIVERY

Rated speed rpm : 465

Del. quantity
cm³/1000 strokes : 1.5

Tolerance
cm³/1000 str. + : 1.5

Check tolerance
cm³/1000S. + : 1.5

Shutoff solenoid
Volt : 12

CHECKING LOAD-DEPENDENT START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -23.0
Tolerance
cm³/1000 str. ± : 3.0
Check tolerance
cm³/1000S. ± : 4.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -0.5
Tolerance
cm³/1000 str. ± : 0.1
Check tolerance
cm³/1000S. ± : 0.1
Shutoff solenoid
Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : 1.0
Tolerance
cm³/1000 str. ± : 1.0
Check tolerance
cm³/1000S. ± : 1.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Tolerance mm ± : 0.4
Check
tolerance mm ± : 0.4
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 35.0
Tolerance
cm³/1000 str. ± : 10.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 70.0

Tolerance
cm³/1000 str. ± : 15.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : -
Dimension KF mm : 5,8
Tolerance mm ± : ±0,2
Dimension MS mm : 1,8
Tolerance mm ± : ±0,1
KSB travel mm : 11,5

POTENTIOMETER SET

1. measurement
voltage Volt : 5,0
1. measurement
voltage Volt : 2,31

CONTROL LEVER POSITION SET

Control lever
position YA mm : 37,9..39,9
Control lever
position YB mm : 41,8..47,0

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.07.95
Test oil : ISO 4113

Part no. : 0 460 404 084
Pump designation : VE4/10F2100R518-1

Customer-spec. information
Customer : IVECO-SOFIM
Motor : 8140.67.2200

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C + : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar + : 0.05

Test nozzle holde
assembly : 1 688 901 022

Opening pressure
bar : 130
Tolerance bar + : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

BEGINNING OF DELIVERY

Prestroke

K20

(as of UT) mm : 0,2
Tolerance mm +- : +-0,02
Check
tolerance mm +- : +-0,04

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1500

Setting mm : 5.0
Tolerance mm +- : 0.1
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1500
Supply pump
pressure bar : 6.7
Tolerance bar +- : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1500
Del. quantity
cm3/1000 strokes : 43.0
Tolerance
cm3/1000 str. +- : 0.5
Spread
cm3/1000 strokes : 3.0
Shutoff solenoid
Volt : 12

IDLE SETTING

Rated speed rpm : 375
Del. quantity
cm3/1000 strokes : 14.0
Tolerance
cm3/1000 str. +- : 2.0
Shutoff solenoid
Volt : 12
Spread
cm3/1000 strokes : 3.0
Check tolerance
cm3/1000s. : 3.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2300
Del. quantity
cm3/1000 strokes : 29.0

Tolerance
 cm³/1000 str. +- : 2.0
 Shutoff solenoid
 Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 85.0
 Tolerance
 cm³/1000 str. +- : 20.0
 Shutoff solenoid
 Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1500
 Del. quantity
 cm³/1000 strokes : -22.0
 Tolerance
 cm³/1000 str. +- : 1.0
 Shutoff solenoid
 Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1500
 Del. quantity
 cm³/1000 strokes : -0.2
 Tolerance
 cm³/1000 str. +- : 0.1
 Shutoff solenoid
 Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
 Del. quantity
 cm³/1000 strokes : -0.5
 Tolerance
 cm³/1000 str. +- : 0.1
 Shutoff solenoid
 Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1800
 SV travel mm : 6.9
 Tolerance mm +- : 0.3

Check
 tolerance mm +- : 0.7
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1150

SV travel mm : 2.7
 Tolerance mm +- : 0.3
 Check
 tolerance mm +- : 0.7
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2100

SV travel mm : 7.3
 Tolerance mm +- : 0.4
 Check
 tolerance mm +- : 0.7
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1500

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2100
 Supply pump
 pressure bar : 8.8
 Tolerance bar +- : 0.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 600
 Supply pump
 pressure bar : 3.5
 Tolerance bar +- : 0.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 400

OVERFLOW QUANTITY

Rated speed rpm : 2100
 Overflow quantity
 ccm/10s : 97.2
 Tolerance
 ccm/10s +- : 41.6

Check tolerance
 ccm/10s +- : 41.6
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 600
 Overflow quantity
 ccm/10s : 63.8

Tolerance
ccm/10s + : 22.2

Check tolerance
ccm/10s + : 22.2
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2300
Del. quantity
cm3/1000 strokes : 29.0
Tolerance
cm3/1000 str. + : 2.0
Check tolerance
cm3/1000S. + : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2400
Del. quantity
cm3/1000 strokes : 10.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2600
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000S. + : 1.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 2100
Del. quantity
cm3/1000 strokes : 44.0
Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000S. + : 2.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 1000
Del. quantity
cm3/1000 strokes : 41.0
Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000S. + : 2.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Del. quantity
cm3/1000 strokes : 36.5

Tolerance
cm3/1000 str. + : 2.0
Check tolerance
cm3/1000S. + : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1500
Del. quantity
cm3/1000 strokes : 43.0
Tolerance
cm3/1000 str. + : 0.5
Check tolerance
cm3/1000S. + : 2.0
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 375
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000S. + : 1.5

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 373
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000S. + : 1.5

IDLE DELIVERY

Rated speed rpm : 465
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000S. + : 1.5
Shutoff solenoid
Volt : 12

CHECKING LOAD-DEPENDENT START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm3/1000 strokes : -23.0
Tolerance
cm3/1000 str. +- : 3.0
Check tolerance
cm3/1000s. +- : 4.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm3/1000 strokes : -0.5
Tolerance
cm3/1000 str. +- : 0.1
Check tolerance
cm3/1000s. +- : 0.1
Shutoff solenoid
Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm3/1000 strokes : 1.0
Tolerance
cm3/1000 str. +- : 1.0
Check tolerance
cm3/1000s. +- : 1.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Tolerance mm +- : 0.4
Check
tolerance mm +- : 0.4
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 35.0
Tolerance
cm3/1000 str. +- : 10.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 300
Del. quantity
cm3/1000 strokes : 70.0

Tolerance
cm3/1000 str. +- : 15.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : -
Dimension KF mm : 5,8
Tolerance mm +- : +-0,2
Dimension MS mm : 1,8
Tolerance mm +- : +-0,2
KSB travel mm : 11,5

CONTROL LEVER POSITION SET

Control lever
position YA mm : 37,9..39,9

Control lever
position YB mm : 41,8..47,0

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 11.07.95
Test oil : ISO 4113

Part no. : 0 460 414 112
Pump designation : VE4/11F1900R521-1

Customer-spec. information
Customer : IVECO-SOFIM
Motor : 8140.27.2560

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.75

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 027

Opening pressure
bar : 250
Tolerance bar ± : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1400
Aneroid pressure
hPa : 1200
Setting mm : 3.2
Tolerance mm ± : 0.1
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1400
Aneroid pressure
hPa : 1200
Supply pump
pressure bar : 7.5
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1000
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 47.0
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000s. : 4.5
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 26.5
Tolerance
cm³/1000 str. ± : 0.5
Shutoff solenoid
Volt : 12
Check tolerance
cm³/1000s. : 4.5

IDLE SETTING

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 10.0
Tolerance
cm³/1000 str. ± : 2.0
Shutoff solenoid
Volt : 12
Spread
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 6.5

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2100
Pressure hPa : 1200
Del. quantity
cm³/1000 strokes : 35.0
Tolerance
cm³/1000 str. + : 2.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 65.0
Tolerance
cm³/1000 str. + : 25.0
Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1400
Pressure hPa : 1200
Del. quantity
cm³/1000 strokes : -22.0
Tolerance
cm³/1000 str. + : 1.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1400
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 str. + : 0.1
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1400
Aneroid pressure
hPa : 1200

Del. quantity
cm³/1000 strokes : -0.8
Tolerance
cm³/1000 str. + : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1750
Aneroid pressure
hPa : 1200
SV travel mm : 5.7
Tolerance mm + : 0.3
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250
Aneroid pressure
hPa : 1200
SV travel mm : 1.7
Tolerance mm + : 0.3
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 1900
Aneroid pressure
hPa : 1200
SV travel mm : 5.7
Tolerance mm + : 0.3
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1900
Aneroid pressure
hPa : 1200
Supply pump
pressure bar : 9.6
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 800
Aneroid pressure
hPa : 1200

Supply pump
pressure bar : 4.6
Tolerance bar +- : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 1900
Aneroid pressure
hPa : 1200
Overflow quantity
ccm/10s : 138.8
Tolerance
ccm/10s +- : 41.6

Check tolerance
ccm/10s +- : 41.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 800
Aneroid pressure
hPa : 1200
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s +- : 22.2

Check tolerance
ccm/10s +- : 22.2
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2100
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 35.0
Tolerance
cm³/1000 str. +- : 2.0
Check tolerance
cm³/1000S. +- : 4.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 2000
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 45.0
Tolerance
cm³/1000 str. +- : 4.0
Check tolerance
cm³/1000S. +- : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2300
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 1.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 800
Aneroid pressure
hPa : 450

LDA/
HBA stroke mm : 5.8
Del. quantity
cm³/1000 strokes : 41.5
Tolerance
cm³/1000 str. +- : 0.5
Check tolerance
cm³/1000S. +- : 3.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 1900
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 48.0
Tolerance
cm³/1000 str. +- : 2.5
Check tolerance
cm³/1000S. +- : 3.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 28.5
Tolerance
cm³/1000 str. +- : 2.5
Check tolerance
cm³/1000S. +- : 3.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 1750
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 48.0
Tolerance
cm³/1000 str. +- : 2.5
Check tolerance
cm³/1000S. +- : 3.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 800
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : 47.0
 Tolerance
 cm³/1000 str. ± : 4.5
 Check tolerance
 cm³/1000s. ± : 5.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1000
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : 47.0
 Tolerance
 cm³/1000 str. ± : 0.5
 Check tolerance
 cm³/1000s. ± : 3.5
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF
 CONTROL LEVER, IDLE STOP

Rated speed rpm : 300
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. ± : 1.5
 Check tolerance
 cm³/1000s. ± : 1.5

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 300
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. ± : 1.5
 Check tolerance
 cm³/1000s. ± : 1.5

IDLE DELIVERY

Rated speed rpm : 425
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. ± : 1.5
 Check tolerance
 cm³/1000s. ± : 1.5
 Shutoff solenoid
 Volt : 12

CHECKING LOAD-DEPENDENT
 START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1400
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : -24.0
 Tolerance
 cm³/1000 str. ± : 3.0
 Check tolerance
 cm³/1000s. ± : 4.0
 Shutoff solenoid
 Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1400
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : -0.8
 Tolerance
 cm³/1000 str. ± : 0.1
 Check tolerance
 cm³/1000s. ± : 0.1
 Shutoff solenoid
 Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1400
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. ± : 1.5
 Check tolerance
 cm³/1000s. ± : 1.5
 Shutoff solenoid
 Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1400
 Aneroid pressure
 hPa : 1200
 Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.4
 Shutoff solenoid
 Volt : 12

START TRANSITION

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 22.0
Tolerance
cm³/1000 str. + : 8.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 200
Del. quantity
cm³/1000 strokes : 80.0
Tolerance
cm³/1000 str. + : 25.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/
HBA stroke mm : 5.8
Dimension K mm : K1
Dimension KF mm : 6,0
Tolerance mm + : +0,2
MS1 dimension mm : 1,4
Tolerance mm + : +0,15/-0,1
KSB travel mm : 7,0

CONTROL LEVER POSITION SET

Control lever
position YA mm : 37,9..39,9

Control lever
position YB mm : 44,1..49,9

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.11.95
Test oil : ISO 4113

Part no. : 0 460 414 134
Pump designation : VE4/11F1900R521-2

Customer-spec. information
Customer : IVECO-SOFIM
Motor : 8140.27.2585
Power KW : 76.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.75

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holder
assembly : 1 688 901 027

Opening pressure
bar : 250
Tolerance bar ± : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1400
Aneroid pressure
hPa : 1200
Setting mm : 3.4
Tolerance mm ± : 0.1
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1400
Aneroid pressure
hPa : 1200
Supply pump
pressure bar : 6.7
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1750
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 51.0
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 4.5
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 27.0
Tolerance
cm³/1000 str. ± : 0.5
Shutoff solenoid
Volt : 12
Check tolerance
cm³/1000S. : 4.5

IDLE SETTING

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 14.0
Tolerance
cm³/1000 str. ± : 2.0
Shutoff solenoid
Volt : 12

Spread
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 6.5

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2050
Pressure hPa : 1200
Del. quantity
cm³/1000 strokes : 40.0
Tolerance
cm³/1000 str. ± : 2.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 70.0
Tolerance
cm³/1000 str. ± : 25.0
Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1400
Pressure hPa : 1200
Del. quantity
cm³/1000 strokes : -8.0
Tolerance
cm³/1000 str. ± : 1.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1400
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 str. ± : 0.1
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1400

Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : -1.0
Tolerance
cm³/1000 str. ± : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1600
Aneroid pressure
hPa : 1200
SV travel mm : 5.1
Tolerance mm ± : 0.3
Check
tolerance mm ± : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 1200
Aneroid pressure
hPa : 1200

SV travel mm : 1.6
Tolerance mm ± : 0.3
Check
tolerance mm ± : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 1900
Aneroid pressure
hPa : 1200

SV travel mm : 5.7
Tolerance mm ± : 0.3
Check
tolerance mm ± : 0.7
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1900
Aneroid pressure
hPa : 1200
Supply pump
pressure bar : 8.8
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 700

Aneroid pressure
hPa : 1200
Supply pump
pressure bar : 3.7
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 1900
Aneroid pressure
hPa : 1200
Overflow quantity
ccm/10s : 152.7
Tolerance
ccm/10s + : 41.6

Check tolerance
ccm/10s + : 41.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 700
Aneroid pressure
hPa : 1200
Overflow quantity
ccm/10s : 111.1
Tolerance
ccm/10s + : 22.2

Check tolerance
ccm/10s + : 22.2
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2050
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 40.0
Tolerance
cm³/1000 str. + : 2.0
Check tolerance
cm³/1000S. + : 4.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 2150
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 21.0
Check tolerance
cm³/1000S. + : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2300
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 800
Aneroid pressure
hPa : 500

LDA/
HBA stroke mm : 4.7
Del. quantity
cm³/1000 strokes : 42.0
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 3.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 1900
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 50.0
Tolerance
cm³/1000 str. + : 2.5
Check tolerance
cm³/1000S. + : 3.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 str. + : 2.5
Check tolerance
cm³/1000S. + : 3.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 1000
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 50.5
Tolerance
cm³/1000 str. + : 2.5
Check tolerance
cm³/1000S. + : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 700
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : 54.0
 Tolerance
 cm³/1000 str. + : 4.5
 Check tolerance
 cm³/1000S. + : 5.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1750
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : 51.0
 Tolerance
 cm³/1000 str. + : 0.5
 Check tolerance
 cm³/1000S. + : 3.5
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF
 CONTROL LEVER, IDLE STOP

Rated speed rpm : 300
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000S. + : 1.5

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 300
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000S. + : 1.5

IDLE DELIVERY

Rated speed rpm : 450
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000S. + : 1.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 250
 Del. quantity
 cm³/1000 strokes : 35.0
 Tolerance
 cm³/1000 str. + : 5.0
 Check tolerance
 cm³/1000S. + : 6.0
 Shutoff solenoid
 Volt : 12

CHECKING LOAD-DEPENDENT
 START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1400
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : -12.0
 Tolerance
 cm³/1000 str. + : 3.0
 Check tolerance
 cm³/1000S. + : 4.0
 Shutoff solenoid
 Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1400
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : -1.0
 Tolerance
 cm³/1000 str. + : 0.1
 Check tolerance
 cm³/1000S. + : 0.1
 Shutoff solenoid
 Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1400
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000S. + : 1.5
 Shutoff solenoid
 Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1400
Aneroid pressure
hPa : 1200
Tolerance mm \pm : 0.4
Check
tolerance mm \pm : 0.4
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 24.0
Tolerance
cm³/1000 str. \pm : 8.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 200
Del. quantity
cm³/1000 strokes : 80.0
Tolerance
cm³/1000 str. \pm : 25.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/
HBA stroke mm : 4.7
Dimension K mm : 3,3
Tolerance mm \pm : $\pm 0,1$
Dimension KF mm : 8,4
Tolerance mm \pm : $\pm 0,2$
MS1 dimension mm : 1,5
Tolerance mm \pm : $\pm 0,15/0,1$
KSB travel mm : 7,0

CONTROL LEVER POSITION SET

Control lever
position YA mm : 36,9..40,9

Control lever
position YB mm : 44,5..49,7

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 12.10.95
Test oil : ISO 4113

Part no. : 0 460 414 122
Pump designation : VE4/11F1900R522-2

Customer-spec. information
Customer : IVECO-SOFIM
Motor : 8140.27.3700
Power KW : 76.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.75

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holder
assembly : 1 688 901 027

Opening pressure
bar : 250
Tolerance bar ± : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1400
Aneroid pressure
hPa : 1200
Setting mm : 3.4
Tolerance mm ± : 0.1
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1400
Aneroid pressure
hPa : 1200
Supply pump
pressure bar : 6.7
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1750
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 51.0
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 4.5
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 27.0
Tolerance
cm³/1000 str. ± : 0.5
Shutoff solenoid
Volt : 12
Check tolerance
cm³/1000S. : 4.5

IDLE SETTING

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 14.0
Tolerance
cm³/1000 str. ± : 2.0
Shutoff solenoid
Volt : 12

Spread
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000s. : 6.5

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2050
Pressure hPa : 1200
Del. quantity
cm³/1000 strokes : 40.0
Tolerance
cm³/1000 str. + : 2.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 70.0
Tolerance
cm³/1000 str. + : 25.0
Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1400
Pressure hPa : 1200
Del. quantity
cm³/1000 strokes : -8.0
Tolerance
cm³/1000 str. + : 1.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1400
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 str. + : 0.1
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1400

Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : -1.0
Tolerance
cm³/1000 str. + : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1600
Aneroid pressure
hPa : 1200
SV travel mm : 5.1
Tolerance mm + : 0.3
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 1200
Aneroid pressure
hPa : 1200
SV travel mm : 1.6
Tolerance mm + : 0.3
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 1900
Aneroid pressure
hPa : 1200
SV travel mm : 5.7
Tolerance mm + : 0.3
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1900
Aneroid pressure
hPa : 1200
Supply pump
pressure bar : 8.8
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 700

Aneroid pressure
hPa : 1200
Supply pump
pressure bar : 3.7
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 1900
Aneroid pressure
hPa : 1200
Overflow quantity
ccm/10s : 152.7
Tolerance
ccm/10s + : 41.6

Check tolerance
ccm/10s + : 41.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 700
Aneroid pressure
hPa : 1200
Overflow quantity
ccm/10s : 111.1
Tolerance
ccm/10s + : 22.2

Check tolerance
ccm/10s + : 22.2
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2050
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 40.0
Tolerance
cm³/1000 str. + : 2.0
Check tolerance
cm³/1000s. + : 4.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 2150
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 21.0
Check tolerance
cm³/1000s. + : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2300
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000s. + : 1.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 800
Aneroid pressure
hPa : 500

LDA/
HBA stroke mm : 4.7
Del. quantity
cm³/1000 strokes : 42.0
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000s. + : 3.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 1900
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 50.0
Tolerance
cm³/1000 str. + : 2.5
Check tolerance
cm³/1000s. + : 3.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 str. + : 2.5
Check tolerance
cm³/1000s. + : 3.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 1000
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 50.5
Tolerance
cm³/1000 str. + : 2.5
Check tolerance
cm³/1000s. + : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 700
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : 54.0
 Tolerance
 cm³/1000 str. ± : 4.5
 Check tolerance
 cm³/1000S. ± : 5.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1750
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : 51.0
 Tolerance
 cm³/1000 str. ± : 0.5
 Check tolerance
 cm³/1000S. ± : 3.5
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF
 CONTROL LEVER, IDLE STOP

Rated speed rpm : 300
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. ± : 1.5
 Check tolerance
 cm³/1000S. ± : 1.5

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 300
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. ± : 1.5
 Check tolerance
 cm³/1000S. ± : 1.5

IDLE DELIVERY

Rated speed rpm : 450
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. ± : 1.5
 Check tolerance
 cm³/1000S. ± : 1.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 250
 Del. quantity
 cm³/1000 strokes : 35.0
 Tolerance
 cm³/1000 str. ± : 5.0
 Check tolerance
 cm³/1000S. ± : 6.0
 Shutoff solenoid
 Volt : 12

CHECKING LOAD-DEPENDENT
 START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1400
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : -12.0
 Tolerance
 cm³/1000 str. ± : 3.0
 Check tolerance
 cm³/1000S. ± : 4.0
 Shutoff solenoid
 Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1400
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : -1.0
 Tolerance
 cm³/1000 str. ± : 0.1
 Check tolerance
 cm³/1000S. ± : 0.1
 Shutoff solenoid
 Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1400
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. ± : 1.5
 Check tolerance
 cm³/1000S. ± : 1.5
 Shutoff solenoid
 Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1400
Aneroid pressure
hPa : 1200
Tolerance mm +- : 0.4
Check
tolerance mm +- : 0.4
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 23.0
Tolerance
cm³/1000 str. +- : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 200
Del. quantity
cm³/1000 strokes : 80.0
Tolerance
cm³/1000 str. +- : 25.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/
HBA stroke mm : 4.7
Dimension K mm : 3,3
Tolerance mm +- : +0,1
Dimension K₁ mm : -
MS1 dimension mm : 1,4
Tolerance mm +- : +0,15/-0,1
KSB travel mm : 10,0

CONTROL LEVER POSITION SET

Control lever
position YA mm : 36,9..40,9

Control lever
position YB mm : 44,5..49,7

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 01.03.95
Test oil : ISO 4113

Part no. : 0 460 484 067
Pump designation : VE4/8F2300R537

Customer-spec. information

Customer : FIAT-AUTO
Motor : M708 HT 17.D
Power KW : 53.0

TEST BENCH REQUIREMENTS

Calibrating-oil return

temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 022

Opening pressure
bar : 130
Tolerance bar ± : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1500
Aneroid pressure
hPa : 1000

Setting mm : 4.1
Tolerance mm ± : 0.1
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1500
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 5.5
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1500
Aneroid pressure
hPa : 1000
Del. quantity
cm3/1000 strokes : 41.5
Tolerance
cm3/1000 str. ± : 0.5
Spread
cm3/1000 strokes : 2.5
Check tolerance
cm3/1000S. : 2.5
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 750
Del. quantity
cm3/1000 strokes : 28.5
Tolerance
cm3/1000 str. ± : 0.5
Shutoff solenoid
Volt : 12
Check tolerance
cm3/1000S. : 2.5

KSB/AFB Volt : 12

IDLE SETTING

Rated speed rpm : 450
 Del. quantity
 cm³/1000 strokes : 12.0
 Tolerance
 cm³/1000 str. ± : 2.0
 Shutoff solenoid
 Volt : 12
 Spread
 cm³/1000 strokes : 2.5
 Check tolerance
 cm³/1000S. : 2.5
 KSB/AFB Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2500
 Pressure hPa : 1000
 Del. quantity
 cm³/1000 strokes : 30.5
 Tolerance
 cm³/1000 str. ± : 2.0
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 47.0
 Tolerance
 cm³/1000 str. ± : 12.0
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2000
 Aneroid pressure
 hPa : 1000
 SV travel mm : 6.8
 Tolerance mm ± : 0.3
 Check
 tolerance mm ± : 0.6
 Shutoff solenoid
 Volt : 12

KSB/AFB Volt : 12
 Rated speed rpm : 1000
 Aneroid pressure
 hPa : 1000
 SV travel mm : 1.4
 Tolerance mm ± : 0.3
 Check
 tolerance mm ± : 0.6
 Shutoff solenoid
 Volt : 12

KSB/AFB Volt : 12
 Rated speed rpm : 400
 Aneroid pressure
 hPa : 1000
 SV travel mm : 1.5
 Tolerance mm ± : 1.0
 Check
 tolerance mm ± : 1.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1100
 Aneroid pressure
 hPa : 1000
 SV travel mm : 3.0
 Tolerance mm ± : 1.0
 Check
 tolerance mm ± : 1.7
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2300
 Aneroid pressure
 hPa : 1000
 SV travel mm : 8.2
 Tolerance mm ± : 0.3
 Check
 tolerance mm ± : 0.6
 Shutoff solenoid
 Volt : 12

KSB/AFB Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2300
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 7.6
 Tolerance bar ± : 0.3

Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 1000

Aneroid pressure
hPa : 1000

Supply pump
pressure bar : 4.2

Tolerance bar ± : 0.3

Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 750

Overflow quantity
ccm/10s : 63.8

Tolerance
ccm/10s ± : 22.2

Check tolerance
ccm/10s ± : 22.2

Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 2300

Aneroid pressure
hPa : 1000

Overflow quantity
ccm/10s : 97.2

Tolerance
ccm/10s ± : 41.6

Check tolerance
ccm/10s ± : 41.6

Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2500

Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 30.5

Tolerance
cm³/1000 str. ± : 2.0

Check tolerance
cm³/1000S. ± : 5.0

Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 2700

Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 10.5

Check tolerance
cm³/1000S. ± : 5.0

Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 2900

Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 1.5

Tolerance
cm³/1000 str. ± : 1.5

Check tolerance
cm³/1000S. ± : 1.5

Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 1100

Aneroid pressure
hPa : 350

LDA/
HBA stroke mm : 5.1

Del. quantity
cm³/1000 strokes : 35.5

Tolerance
cm³/1000 str. ± : 0.5

Check tolerance
cm³/1000S. ± : 2.5

Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 2300

Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 41.5

Tolerance
cm³/1000 str. ± : 1.0

Check tolerance
cm³/1000S. ± : 2.3

Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 1100
 Del. quantity
 cm³/1000 strokes : 30.5
 Tolerance
 cm³/1000 str. ± : 1.5
 Check tolerance
 cm³/1000S. ± : 2.5
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

Rated speed rpm : 750
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 40.5
 Tolerance
 cm³/1000 str. ± : 1.5
 Check tolerance
 cm³/1000S. ± : 2.5
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

Rated speed rpm : 1500
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 41.5
 Tolerance
 cm³/1000 str. ± : 0.5
 Check tolerance
 cm³/1000S. ± : 2.0
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF
 CONTROL LEVER, IDLE STOP

Rated speed rpm : 450
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. ± : 1.5
 Check tolerance
 cm³/1000S. ± : 1.5
 Spread
 cm³/1000 strokes : 5.0
 KSB/AFB Volt : 12

IDLE DELIVERY

Rated speed rpm : 550

Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. ± : 1.5
 Check tolerance
 cm³/1000S. ± : 1.5
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

Rated speed rpm : 400
 Del. quantity
 cm³/1000 strokes : 23.0
 Tolerance
 cm³/1000 str. ± : 2.5
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

EXHAUST-GAS RECIRCULATION

Rated speed rpm : 1100
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 20.0
 Tolerance
 cm³/1000 str. ± : 1.0
 Check tolerance
 cm³/1000S. ± : 2.5
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

START TRANSITION

Rated speed rpm : 600
 Del. quantity
 cm³/1000 strokes : 24.0
 Tolerance
 cm³/1000 str. ± : 10.0
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

Rated speed rpm : 300
 Del. quantity
 cm³/1000 strokes : 47.0
 Tolerance
 cm³/1000 str. ± : 10.0

Shutoff solenoid
Volt : 12
KSB/AFB Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/
HBA stroke mm : 5.1
Dimension K mm : 3,3
Tolerance mm \pm : $\pm 0,1$
Dimension KF mm : 5,4
Tolerance mm \pm : $\pm 0,2$
Dimension MS mm : 1,4
Tolerance mm \pm : $\pm 0,2$

POTENTIOMETER
SET

1. measurement
voltage Volt : 5,0
1. measurement
voltage Volt : 3,32

MICROSWITCH
SET

: ARF 12,0

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 37,2..39,2

Control lever
position YB mm : 43,9..52,5

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.08.95
Test oil : ISO 4113

Part no. : 0 460 484 083
Pump designation : VE4/8F2300R537-1

Customer-spec. information

Customer : FIAT-AUTO
Motor : M708 HT 17.0
Power KW : 53.0

TEST BENCH REQUIREMENTS

Calibrating-oil return

temperature °C : 45
Tolerance °C ± : 1

Overflow restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holder assembly : 1 688 901 022

Opening pressure bar : 130
Tolerance bar ± : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1500
Aneroid pressure hPa : 1000
Setting mm : 4.4
Tolerance mm ± : 0.1
Shutoff solenoid Volt : 12
KSB/AFB Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1500
Aneroid pressure hPa : 1000
Supply pump pressure bar : 5.8
Tolerance bar ± : 0.3
Shutoff solenoid Volt : 12
KSB/AFB Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1500
Aneroid pressure hPa : 1000
Del. quantity cm³/1000 strokes : 41.5
Tolerance cm³/1000 str. ± : 0.5
Spread cm³/1000 strokes : 2.5
Check tolerance cm³/1000S. : 2.5
Shutoff solenoid Volt : 12
KSB/AFB Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 750
Del. quantity cm³/1000 strokes : 31.5
Tolerance cm³/1000 str. ± : 0.5
Shutoff solenoid Volt : 12
Check tolerance cm³/1000S. : 2.5
KSB/AFB Volt : 12

IDLE SETTING

Rated speed rpm : 450
 Del. quantity
 cm³/1000 strokes : 10.0
 Tolerance
 cm³/1000 str. + : 2.0
 Shutoff solenoid
 Volt : 12
 Spread
 cm³/1000 strokes : 2.5
 Check tolerance
 cm³/1000S. : 2.5
 KSB/AFB Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2500
 Pressure hPa : 1000
 Del. quantity
 cm³/1000 strokes : 32.5
 Tolerance
 cm³/1000 str. + : 2.0
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 47.0
 Tolerance
 cm³/1000 str. + : 12.0
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2000
 Aneroid pressure
 hPa : 1000
 SV travel mm : 7.0
 Tolerance mm + : 0.3
 Check
 tolerance mm + : 0.6
 Shutoff solenoid
 Volt : 12

KSB/AFB Volt : 12
 Rated speed rpm : 1000
 Aneroid pressure
 hPa : 1000
 SV travel mm : 1.5
 Tolerance mm + : 0.3
 Check
 tolerance mm + : 0.6
 Shutoff solenoid
 Volt : 12

KSB/AFB Volt : 12
 Rated speed rpm : 450
 Aneroid pressure
 hPa : 1000
 SV travel mm : 1.5
 Tolerance mm + : 1.0
 Check
 tolerance mm + : 1.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1100
 Aneroid pressure
 hPa : 1000
 SV travel mm : 3.0
 Tolerance mm + : 1.0
 Check
 tolerance mm + : 1.7
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2300
 Aneroid pressure
 hPa : 1000
 SV travel mm : 7.8
 Tolerance mm + : 0.3
 Check
 tolerance mm + : 0.6
 Shutoff solenoid
 Volt : 12

KSB/AFB Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2300
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 8.1
 Tolerance bar + : 0.3

Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 4.2
Tolerance bar +- : 0.3
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 750
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s +- : 22.2

Check tolerance
ccm/10s +- : 22.2
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 2300
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s +- : 41.6

Check tolerance
ccm/10s +- : 41.6
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2500
Aneroid pressure
hPa : 1000
Del. quantity
cm3/1000 strokes : 32.5
Tolerance
cm3/1000 str. +- : 2.0
Check tolerance
cm3/1000S. +- : 5.0
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 2700
Aneroid pressure
hPa : 1000
Del. quantity
cm3/1000 strokes : 12.5
Check tolerance
cm3/1000S. +- : 5.0
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 2900
Aneroid pressure
hPa : 1000
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. +- : 1.5
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 1100
Aneroid pressure
hPa : 350

LDA/
HBA stroke mm : 5.1
Del. quantity
cm3/1000 strokes : 39.0
Tolerance
cm3/1000 str. +- : 0.5
Check tolerance
cm3/1000S. +- : 2.5
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 2300
Aneroid pressure
hPa : 1000
Del. quantity
cm3/1000 strokes : 40.5
Tolerance
cm3/1000 str. +- : 1.0
Check tolerance
cm3/1000S. +- : 2.3
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 1100
 Del. quantity
 cm3/1000 strokes : 31.5
 Tolerance
 cm3/1000 str. +- : 1.5
 Check tolerance
 cm3/1000S. +- : 2.5
 Shutoff solenoid
 Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 750
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm3/1000 strokes : 41.5
 Tolerance
 cm3/1000 str. +- : 1.5
 Check tolerance
 cm3/1000S. +- : 2.5
 Shutoff solenoid
 Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 1500
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm3/1000 strokes : 41.5
 Tolerance
 cm3/1000 str. +- : 0.5
 Check tolerance
 cm3/1000S. +- : 2.0
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF
 CONTROL LEVER, IDLE STOP

Rated speed rpm : 450
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. +- : 1.5
 Check tolerance
 cm3/1000S. +- : 1.5
 Spread
 cm3/1000 strokes : 5.0

KSB/AFB Volt : 12

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 450
 Del. quantity
 cm3/1000 strokes : 1.5

Tolerance
 cm3/1000 str. +- : 1.5
 Spread
 cm3/1000 strokes : 5.0
 Check tolerance
 cm3/1000S. +- : 1.5
 Spread
 cm3/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 550
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. +- : 1.5
 Check tolerance
 cm3/1000S. +- : 1.5
 Shutoff solenoid
 Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 400
 Del. quantity
 cm3/1000 strokes : 21.0
 Tolerance
 cm3/1000 str. +- : 2.5
 Shutoff solenoid
 Volt : 12

KSB/AFB Volt : 12

EXHAUST-GAS RECIRCULATION

Rated speed rpm : 1100
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm3/1000 strokes : 20.0
 Tolerance
 cm3/1000 str. +- : 1.0
 Check tolerance
 cm3/1000S. +- : 2.5
 Shutoff solenoid
 Volt : 12

KSB/AFB Volt : 12

START TRANSITION

Rated speed rpm : 600
 Del. quantity
 cm3/1000 strokes : 24.0

Tolerance
cm³/1000 str. ± : 10.0
Shutoff solenoid
Volt : 12
KSB/AFB Volt : 12

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 47.0
Tolerance
cm³/1000 str. ± : 10.0
Shutoff solenoid
Volt : 12
KSB/AFB Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/
HBA stroke mm : 5.1
Dimension K mm : 3,3
Tolerance mm ± : ±0,1
Dimension KF mm : 5,4
Tolerance mm ± : ±0,2
Dimension MS mm : 1,4
Tolerance mm ± : ±0,2

POTENTIOMETER SET

1. measurement
voltage Volt : 1=3,32 V

MICROSWITCH SET

: 1=ARF 12,0

CONTROL LEVER POSITION SET

Control lever
position YA mm : 37,2..39,2

Control lever
position YB mm : 43,9..52,5

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.02.95
Test oil : ISO 4113

Part no. : 0 460 484 068
Pump designation : VE4/8F2300R538

Customer-spec. information

Customer : FIAT-AUTO
Motor : M708 HT 17.L
Power KW : 53.0

TEST BENCH REQUIREMENTS

Calibrating-oil return

temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 022

Opening pressure
bar : 130
Tolerance bar ± : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1500
Aneroid pressure
hPa : 1000

Setting mm : 4.1
Tolerance mm ± : 0.1
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1500
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 5.5
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1500
Aneroid pressure
hPa : 1000
Del. quantity
cm3/1000 strokes : 41.5
Tolerance
cm3/1000 str. ± : 0.5
Spread
cm3/1000 strokes : 2.5
Check tolerance
cm3/1000S. : 2.5
Shutoff solenoid
Volt : 12
KSB/AFB Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 750
Del. quantity
cm3/1000 strokes : 28.5
Tolerance
cm3/1000 str. ± : 0.5
Shutoff solenoid
Volt : 12
Check tolerance
cm3/1000S. : 2.5
KSB/AFB Volt : 12

IDLE SETTING

Rated speed rpm : 450
 Del. quantity
 cm³/1000 strokes : 12.0
 Tolerance
 cm³/1000 str. + : 2.0
 Shutoff solenoid
 Volt : 12
 Spread
 cm³/1000 strokes : 2.5
 Check tolerance
 cm³/1000S. : 2.5
 KSB/AFB Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2500
 Pressure hPa : 1000
 Del. quantity
 cm³/1000 strokes : 30.5
 Tolerance
 cm³/1000 str. + : 2.0
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 47.0
 Tolerance
 cm³/1000 str. + : 12.0
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2000
 Aneroid pressure
 hPa : 1000
 SV travel mm : 6.8
 Tolerance mm + : 0.3
 Check
 tolerance mm + : 0.6
 Shutoff solenoid
 Volt : 12

KSB/AFB Volt : 12
 Rated speed rpm : 1000
 Aneroid pressure
 hPa : 1000
 SV travel mm : 1.4
 Tolerance mm + : 0.3
 Check
 tolerance mm + : 0.6
 Shutoff solenoid
 Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 400
 Aneroid pressure
 hPa : 1000

SV travel mm : 1.5
 Tolerance mm + : 1.0
 Check
 tolerance mm + : 1.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1100
 Aneroid pressure
 hPa : 1000

SV travel mm : 3.0
 Tolerance mm + : 1.0
 Check
 tolerance mm + : 1.7
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2300
 Aneroid pressure
 hPa : 1000

SV travel mm : 8.2
 Tolerance mm + : 0.3
 Check
 tolerance mm + : 0.6
 Shutoff solenoid
 Volt : 12

KSB/AFB Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2300
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 7.6
 Tolerance bar + : 0.3

Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 1000

Aneroid pressure
hPa : 1000

Supply pump
pressure bar : 4.2

Tolerance bar + : 0.3

Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 750

Overflow quantity
ccm/10s : 63.8

Tolerance
ccm/10s + : 22.2

Check tolerance
ccm/10s + : 22.2

Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 2300

Aneroid pressure
hPa : 1000

Overflow quantity
ccm/10s : 97.2

Tolerance
ccm/10s + : 41.6

Check tolerance
ccm/10s + : 41.6

Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2500

Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 30.5

Tolerance
cm³/1000 str. + : 2.0

Check tolerance
cm³/1000S. + : 5.0

Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 2700

Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 10.5

Check tolerance
cm³/1000S. + : 5.0

Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 2900

Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 1.5

Tolerance
cm³/1000 str. + : 1.5

Check tolerance
cm³/1000S. + : 1.5

Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 1100

Aneroid pressure
hPa : 350

LDA/
HBA stroke mm : 5.1

Del. quantity
cm³/1000 strokes : 35.5

Tolerance
cm³/1000 str. + : 0.5

Check tolerance
cm³/1000S. + : 2.5

Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 2300

Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 41.5

Tolerance
cm³/1000 str. + : 1.0

Check tolerance
cm³/1000S. + : 2.3

Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 1100
 Del. quantity
 cm³/1000 strokes : 30.5
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000S. + : 2.5
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

Rated speed rpm : 750
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 40.5
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000S. + : 2.5
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

Rated speed rpm : 1500
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 41.5
 Tolerance
 cm³/1000 str. + : 0.5
 Check tolerance
 cm³/1000S. + : 2.0
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 450
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000S. + : 1.5
 Spread
 cm³/1000 strokes : 5.0
 KSB/AFB Volt : 12

IDLE DELIVERY

Rated speed rpm : 550

Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000S. + : 1.5
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

Rated speed rpm : 400
 Del. quantity
 cm³/1000 strokes : 23.0
 Tolerance
 cm³/1000 str. + : 2.5
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

START TRANSITION

Rated speed rpm : 600
 Del. quantity
 cm³/1000 strokes : 24.0
 Tolerance
 cm³/1000 str. + : 10.0
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

Rated speed rpm : 300
 Del. quantity
 cm³/1000 strokes : 47.0
 Tolerance
 cm³/1000 str. + : 10.0
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/
 HBA stroke mm : 5.1
 Dimension K mm : 3,3
 Tolerance mm + : +0,1
 Dimension KF mm : 5,4
 Tolerance mm + : +0,2
 Dimension MS mm : 1,4

Tolerance mm \pm : $\pm 0,2$

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 37,2..39,2

Control lever
position YB mm : 43,9..52,5

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.08.95
Test oil : ISO 4113

Part no. : 0 460 484 084
Pump designation : VE4/8F2300R538-1

Customer-spec. information

Customer : FIAT-AUTO
Motor : M708 NT 17.L
Power KW : 53.0

TEST BENCH REQUIREMENTS

Calibrating-oil return

temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 022

Opening pressure
bar : 130
Tolerance bar ± : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1500
Aneroid pressure
hPa : 1000

Setting mm : 4.4
Tolerance mm ± : 0.1
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1500
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 5.8
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1500
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 41.5
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 2.5
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 31.5
Tolerance
cm³/1000 str. ± : 0.5
Shutoff solenoid
Volt : 12
Check tolerance
cm³/1000S. : 2.5

KSB/AFB Volt : 12

IDLE SETTING

Rated speed rpm : 450
 Del. quantity
 cm³/1000 strokes : 10.0
 Tolerance
 cm³/1000 str. + : 2.0
 Shutoff solenoid
 Volt : 12
 Spread
 cm³/1000 strokes : 2.5
 Check tolerance
 cm³/1000S. : 2.5
 KSB/AFB Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2500
 Pressure hPa : 1000
 Del. quantity
 cm³/1000 strokes : 32.5
 Tolerance
 cm³/1000 str. + : 2.0
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 47.0
 Tolerance
 cm³/1000 str. + : 12.0
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2000
 Aneroid pressure
 hPa : 1000
 SV travel mm : 7.0
 Tolerance mm + : 0.3
 Check
 tolerance mm + : 0.6
 Shutoff solenoid
 Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 1000
 Aneroid pressure
 hPa : 1000

SV travel mm : 1.5
 Tolerance mm + : 0.3
 Check
 tolerance mm + : 0.6
 Shutoff solenoid
 Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 450
 Aneroid pressure
 hPa : 1000

SV travel mm : 1.5
 Tolerance mm + : 1.0
 Check
 tolerance mm + : 1.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1100
 Aneroid pressure
 hPa : 1000

SV travel mm : 3.0
 Tolerance mm + : 1.0
 Check
 tolerance mm + : 1.7
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2300
 Aneroid pressure
 hPa : 1000

SV travel mm : 7.8
 Tolerance mm + : 0.3
 Check
 tolerance mm + : 0.6
 Shutoff solenoid
 Volt : 12

KSB/AFB Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2300
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 8.1
 Tolerance bar + : 0.3

Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 1000

Aneroid pressure
hPa : 1000

Supply pump
pressure bar : 4.2

Tolerance bar + : 0.3

Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 750

Overflow quantity
ccm/10s : 63.8

Tolerance
ccm/10s + : 22.2

Check tolerance
ccm/10s + : 22.2

Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 2300

Aneroid pressure
hPa : 1000

Overflow quantity
ccm/10s : 97.2

Tolerance
ccm/10s + : 41.6

Check tolerance
ccm/10s + : 41.6

Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2500

Aneroid pressure
hPa : 1000

Del. quantity
cm3/1000 strokes : 32.5

Tolerance
cm3/1000 str. + : 2.0

Check tolerance
cm3/1000S. + : 5.0

Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 2700

Aneroid pressure
hPa : 1000

Del. quantity
cm3/1000 strokes : 12.5

Check tolerance
cm3/1000S. + : 5.0

Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 2900

Aneroid pressure
hPa : 1000

Del. quantity
cm3/1000 strokes : 1.5

Tolerance
cm3/1000 str. + : 1.5

Check tolerance
cm3/1000S. + : 1.5

Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 1100

Aneroid pressure
hPa : 350

LDA/
HBA stroke mm : 5.1

Del. quantity
cm3/1000 strokes : 39.0

Tolerance
cm3/1000 str. + : 0.5

Check tolerance
cm3/1000S. + : 2.5

Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 2300

Aneroid pressure
hPa : 1000

Del. quantity
cm3/1000 strokes : 40.5

Tolerance
cm3/1000 str. + : 1.0

Check tolerance
cm3/1000S. + : 2.3

Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 1100
 Del. quantity
 cm³/1000 strokes : 31.5
 Tolerance
 cm³/1000 str. +- : 1.5
 Check tolerance
 cm³/1000S. +- : 2.5
 Shutoff solenoid
 Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 750
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 41.5
 Tolerance
 cm³/1000 str. +- : 1.5
 Check tolerance
 cm³/1000S. +- : 2.5
 Shutoff solenoid
 Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 1500
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 41.5
 Tolerance
 cm³/1000 str. +- : 0.5
 Check tolerance
 cm³/1000S. +- : 2.0
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF
 CONTROL LEVER, IDLE STOP

Rated speed rpm : 450
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. +- : 1.5
 Check tolerance
 cm³/1000S. +- : 1.5
 Spread
 cm³/1000 strokes : 5.0

KSB/AFB Volt : 12

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 450
 Del. quantity
 cm³/1000 strokes : 1.5

M01

Tolerance
 cm³/1000 str. +- : 1.5
 Spread
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. +- : 1.5
 Spread
 cm³/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 550
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. +- : 1.5
 Check tolerance
 cm³/1000S. +- : 1.5
 Shutoff solenoid
 Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 400
 Del. quantity
 cm³/1000 strokes : 21.0
 Tolerance
 cm³/1000 str. +- : 2.5
 Shutoff solenoid
 Volt : 12

KSB/AFB Volt : 12

START TRANSITION

Rated speed rpm : 600
 Del. quantity
 cm³/1000 strokes : 24.0
 Tolerance
 cm³/1000 str. +- : 10.0
 Shutoff solenoid
 Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 300
 Del. quantity
 cm³/1000 strokes : 47.0
 Tolerance
 cm³/1000 str. +- : 10.0
 Shutoff solenoid
 Volt : 12

KSB/AFB Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/

HBA stroke mm : 5.1

Dimension K mm : 3,3

Tolerance mm \pm : $\pm 0,1$

Dimension KF mm : 5,4

Tolerance mm \pm : $\pm 0,2$

Dimension MS mm : 1,4

Tolerance mm \pm : $\pm 0,2$

CONTROL LEVER POSITION SET

Control lever
position YA mm : 37,2..39,2

Control lever
position YB mm : 43,9..52,5

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 06.06.94
Test oil : ISO 4113

Part no. : 0 460 424 099
Pump designation : VE4/12F1400R539

Customer-spec. information
Customer : NISSAN-MISA
Motor : B 4.40 II

TEST BENCH REQUIREMENTS

Overflow restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar +- : 0.05

Test nozzle holde assembly : 1 688 901 109

Opening pressure bar : 207
Tolerance bar +- : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 0,3
Outlet : A

INJECTION PUMP SETTING VALUES

M03

TIMING DEVICE TRAVEL

Rated speed rpm : 1100

Setting mm : 1.4
Tolerance mm +- : 0.1
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1100
Supply pump
pressure bar : 7.2
Tolerance bar +- : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 840
Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 74.0
Del. quantity
cm3/1000 strokes : 70.0
Tolerance
cm3/1000 str. +- : 0.5
Tolerance
cm3/1000 str. +- : 0.5
Spread
cm3/1000 strokes : 5.0
Spread
cm3/1000 strokes : 5.0
Shutoff solenoid
Volt : 12
Shutoff solenoid
Volt : 12
Check tolerance
cm3/1000s. : 5.0

IDLE SETTING

Rated speed rpm : 350
Del. quantity
cm3/1000 strokes : 15.0
Tolerance
cm3/1000 str. +- : 2.0
Shutoff solenoid
Volt : 12
Spread
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000s. : 5.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1575
 Del. quantity
 cm³/1000 strokes : 54.0
 Tolerance
 cm³/1000 str. +- : 2.0
 Shutoff solenoid
 Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 125.0
 Tolerance
 cm³/1000 str. +- : 30.0
 Shutoff solenoid
 Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1300
 SV travel mm : 2.9
 Tolerance mm +- : 0.3
 Check
 tolerance mm +- : 0.8
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1000
 SV travel mm : 0.7
 Tolerance mm +- : 0.3
 Check
 tolerance mm +- : 0.8
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1400
 SV travel mm : 3.4
 Tolerance mm +- : 0.3
 Check
 tolerance mm +- : 0.8
 Shutoff solenoid
 Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1400
 Supply pump
 pressure bar : 8.4
 Tolerance bar +- : 0.3

Shutoff solenoid
 Volt : 12

Rated speed rpm : 1000

Rated speed rpm : 500
 Supply pump
 pressure bar : 4.8
 Tolerance bar +- : 0.3
 Shutoff solenoid
 Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 500
 Overflow quantity
 ccm/10s : 63.8
 Tolerance
 ccm/10s +- : 22.2

Check tolerance
 ccm/10s +- : 22.2
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1400
 Overflow quantity
 ccm/10s : 97.2
 Tolerance
 ccm/10s +- : 41.6

Check tolerance
 ccm/10s +- : 41.6
 Shutoff solenoid
 Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1575
 Del. quantity
 cm³/1000 strokes : 54.0
 Tolerance
 cm³/1000 str. +- : 2.0
 Check tolerance
 cm³/1000s. +- : 6.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1525
 Del. quantity
 cm³/1000 strokes : 70.0
 Tolerance
 cm³/1000 str. +- : 10.0
 Check tolerance
 cm³/1000s. +- : 10.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1700

Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. +- : 1.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 1400
Del. quantity
cm3/1000 strokes : 76.0
Tolerance
cm3/1000 str. +- : 2.5
Check tolerance
cm3/1000S. +- : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1000
Del. quantity
cm3/1000 strokes : 75.5
Tolerance
cm3/1000 str. +- : 2.5
Check tolerance
cm3/1000S. +- : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 70.0
Tolerance
cm3/1000 str. +- : 0.5
Check tolerance
cm3/1000S. +- : 3.5
Shutoff solenoid
Volt : 12

MECHANICAL SHUTOFF

Rated speed rpm : 1400
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. +- : 1.5
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 350
Del. quantity
cm3/1000 strokes : 1.5

M05

Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. +- : 1.5

IDLE DELIVERY

Rated speed rpm : 430
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. +- : 1.5
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 250
Del. quantity
cm3/1000 strokes : 70.0
Tolerance
cm3/1000 str. +- : 20.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 130
Del. quantity
cm3/1000 strokes : 125.0
Tolerance
cm3/1000 str. +- : 30.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,7
Tolerance mm +- : +-0,1
Dimension KF mm : 6,4
Tolerance mm +- : +-0,2
Dimension MS mm : 1,1
Tolerance mm +- : +-0,2

CONTROL LEVER POSITION SET

Control lever
position YA mm : 37,2..39,2

Control lever
position YB mm : 52,7..60,4

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.06.95
Test oil : ISO 4113

Part no. : 0 460 414 120
Pump designation : VE4/11F1900R542-1

Customer-spec. information
Customer : IVECO-SOFIM
Motor : 8140.47.2200

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.75

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 027

Opening pressure
bar : 250
Tolerance bar ± : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

M07

Rated speed rpm : 1200
Aneroid pressure
hPa : 1000

Setting mm : 1.8
Tolerance mm ± : 0.1
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1200
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 6.0
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1400
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 56.0
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 4.5
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 27.0
Tolerance
cm³/1000 str. ± : 0.5
Shutoff solenoid
Volt : 12
Check tolerance
cm³/1000S. : 4.5

IDLE SETTING

Rated speed rpm : 325
Del. quantity
cm³/1000 strokes : 17.0
Tolerance
cm³/1000 str. ± : 2.0
Shutoff solenoid
Volt : 12
Spread
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000s. : 6.5

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2100
Pressure hPa : 1000
Del. quantity
cm³/1000 strokes : 37.0
Tolerance
cm³/1000 str. +- : 3.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 65.0
Tolerance
cm³/1000 str. +- : 25.0
Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1400
Pressure hPa : 1000
Del. quantity
cm³/1000 strokes : -26.0
Tolerance
cm³/1000 str. +- : 1.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1400
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 str. +- : 0.1
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1400
Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : -0.8
Tolerance
cm³/1000 str. +- : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1600
Aneroid pressure
hPa : 1000
SV travel mm : 4.3
Tolerance mm +- : 0.4
Check
tolerance mm +- : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 1100
Aneroid pressure
hPa : 1000

SV travel mm : 1.1
Tolerance mm +- : 0.4
Check
tolerance mm +- : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 1900
Aneroid pressure
hPa : 1000

SV travel mm : 4.9
Tolerance mm +- : 0.4
Check
tolerance mm +- : 0.7
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1900
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 8.5
Tolerance bar +- : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 700
Aneroid pressure
hPa : 1000

Supply pump
pressure bar : 4.1
Tolerance bar +- : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 1900
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 138.8
Tolerance
ccm/10s +- : 41.6

Check tolerance
ccm/10s +- : 41.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 700
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 111.1
Tolerance
ccm/10s +- : 22.2

Check tolerance
ccm/10s +- : 22.2
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2100
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 37.0
Tolerance
cm³/1000 str. +- : 3.0
Check tolerance
cm³/1000S. +- : 4.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 2200
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 16.0
Check tolerance
cm³/1000S. +- : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2280

Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 1.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 700
Aneroid pressure
hPa : 400

LDA/
HBA stroke mm : 6.2
Del. quantity
cm³/1000 strokes : 44.0
Tolerance
cm³/1000 str. +- : 0.5
Check tolerance
cm³/1000S. +- : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1900
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 58.5
Tolerance
cm³/1000 str. +- : 2.5
Check tolerance
cm³/1000S. +- : 3.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 1200
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 56.0
Tolerance
cm³/1000 str. +- : 2.5
Check tolerance
cm³/1000S. +- : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1750
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 58.0
Tolerance
cm³/1000 str. +- : 2.5
Check tolerance
cm³/1000S. +- : 3.5

Shutoff solenoid
 Volt : 12

Rated speed rpm : 700
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 57.0
 Tolerance
 cm³/1000 str. + : 4.5
 Check tolerance
 cm³/1000S. + : 5.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1400
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 56.0
 Tolerance
 cm³/1000 str. + : 0.5
 Check tolerance
 cm³/1000S. + : 3.5
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF
 CONTROL LEVER, IDLE STOP

Rated speed rpm : 325
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000S. + : 1.5

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 325
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000S. + : 1.5

IDLE DELIVERY

Rated speed rpm : 450
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000S. + : 1.5

Shutoff solenoid
 Volt : 12

CHECKING LOAD-DEPENDENT
 START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1400
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : -28.0
 Tolerance
 cm³/1000 str. + : 3.0
 Check tolerance
 cm³/1000S. + : 4.0
 Shutoff solenoid
 Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1400
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : -0.8
 Tolerance
 cm³/1000 str. + : 0.1
 Check tolerance
 cm³/1000S. + : 0.1
 Shutoff solenoid
 Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1400
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000S. + : 1.5
 Shutoff solenoid
 Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1400
 Aneroid pressure
 hPa : 1000
 Tolerance mm + : 0.2
 Check
 tolerance mm + : 0.4

Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 22.0
Tolerance
cm³/1000 str. \pm : 8.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 200
Del. quantity
cm³/1000 strokes : 80.0
Tolerance
cm³/1000 str. \pm : 25.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/
HBA stroke mm : 6.2
Dimension K mm : 3,3
Tolerance mm \pm : $\pm 0,1$
Dimension KF mm : 8,4
Tolerance mm \pm : $\pm 0,2$
MS1 dimension mm : 1,7
Tolerance mm \pm : $\pm 0,15/-0,1$
KSB travel mm : 5,7

CONTROL LEVER POSITION SET

Control lever
position YA mm : 33,0..35,0

Control lever
position YB mm : 48,9..54,9

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.07.95
Test oil : ISO 4113

Part no. : 0 460 414 128
Pump designation : VE4/11F1900R542-2

Customer-spec. information

Customer : IVECO-SOFIM
Motor : 8140.47.2200
Power KW : 83.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.75

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holder
assembly : 1 688 901 027

Opening pressure
bar : 250
Tolerance bar ± : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1200
Aneroid pressure
hPa : 1000
Setting mm : 1.8
Tolerance mm ± : 0.1
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1200
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 6.0
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1400
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 56.0
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 4.5
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 27.0
Tolerance
cm³/1000 str. ± : 0.5
Shutoff solenoid
Volt : 12
Check tolerance
cm³/1000S. : 4.5

IDLE SETTING

Rated speed rpm : 325
Del. quantity
cm³/1000 strokes : 17.0
Tolerance
cm³/1000 str. ± : 2.0
Shutoff solenoid
Volt : 12

Spread
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000s. : 6.5

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2100
Pressure hPa : 1000
Del. quantity
cm³/1000 strokes : 37.0
Tolerance
cm³/1000 str. +- : 3.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 65.0
Tolerance
cm³/1000 str. +- : 25.0
Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1400
Pressure hPa : 1000
Del. quantity
cm³/1000 strokes : -26.0
Tolerance
cm³/1000 str. +- : 1.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1400
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 str. +- : 0.1
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1400

Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : -0.8
Tolerance
cm³/1000 str. +- : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1600
Aneroid pressure
hPa : 1000
SV travel mm : 4.3
Tolerance mm +- : 0.4
Check
tolerance mm +- : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 1100
Aneroid pressure
hPa : 1000

SV travel mm : 1.1
Tolerance mm +- : 0.4
Check
tolerance mm +- : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 1900
Aneroid pressure
hPa : 1000

SV travel mm : 4.9
Tolerance mm +- : 0.4
Check
tolerance mm +- : 0.7
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1900
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 8.5
Tolerance bar +- : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 700

Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 4.1
Tolerance bar +- : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 1900
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 138.8
Tolerance
ccm/10s +- : 41.6

Check tolerance
ccm/10s +- : 41.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 700
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 111.1
Tolerance
ccm/10s +- : 22.2

Check tolerance
ccm/10s +- : 22.2
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2100
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 37.0
Tolerance
cm³/1000 str. +- : 3.0
Check tolerance
cm³/1000S. +- : 4.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 2200
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 18.0
Check tolerance
cm³/1000S. +- : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2280
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 1.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 700
Aneroid pressure
hPa : 400

LDA/
HBA stroke mm : 6.2
Del. quantity
cm³/1000 strokes : 44.0
Tolerance
cm³/1000 str. +- : 0.5
Check tolerance
cm³/1000S. +- : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1900
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 57.0
Tolerance
cm³/1000 str. +- : 2.5
Check tolerance
cm³/1000S. +- : 3.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 1200
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 55.0
Tolerance
cm³/1000 str. +- : 2.5
Check tolerance
cm³/1000S. +- : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1750
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 58.0
Tolerance
cm³/1000 str. +- : 2.5
Check tolerance
cm³/1000S. +- : 3.5

Shutoff solenoid
 Volt : 12

Rated speed rpm : 700
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 57.0
 Tolerance
 cm³/1000 str. + : 4.5
 Check tolerance
 cm³/1000S. + : 5.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1400
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 56.0
 Tolerance
 cm³/1000 str. + : 0.5
 Check tolerance
 cm³/1000S. + : 3.5
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 325
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000S. + : 1.5

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 325
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000S. + : 1.5

IDLE DELIVERY

Rated speed rpm : 450
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000S. + : 1.5

Shutoff solenoid
 Volt : 12

CHECKING LOAD-DEPENDENT
START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1400
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : -28.0
 Tolerance
 cm³/1000 str. + : 3.0
 Check tolerance
 cm³/1000S. + : 4.0
 Shutoff solenoid
 Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1400
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : -0.8
 Tolerance
 cm³/1000 str. + : 0.1
 Check tolerance
 cm³/1000S. + : 0.1
 Shutoff solenoid
 Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1400
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000S. + : 1.5
 Shutoff solenoid
 Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1400
 Aneroid pressure
 hPa : 1000
 Tolerance mm + : 0.2
 Check
 tolerance mm + : 0.4

Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 22.0
Tolerance
cm³/1000 str. \pm : 8.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 200
Del. quantity
cm³/1000 strokes : 80.0
Tolerance
cm³/1000 str. \pm : 25.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/
HBA stroke mm : 6.2
Dimension K mm : 3,3
Tolerance mm \pm : $\pm 0,1$
Dimension KF mm : 8,4
Tolerance mm \pm : $\pm 0,2$
MS1 dimension mm : 1,6
Tolerance mm \pm : $\pm 0,15/-0,1$
KSB travel mm : 5,7

CONTROL LEVER POSITION SET

Control lever
position YA mm : 33,0..35,0

Control lever
position YB mm : 48,9..54,9

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.02.95
Test oil : ISO 4113

Part no. : 0 460 494 400
Pump designation : VE4/9F2100R547-1

Customer-spec. information

Customer : FIAT-AUTO
Motor : M 721 CT 19.S
Power kW : 60.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.75

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 022

Opening pressure
bar : 130
Tolerance bar ± : 3

Test Lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1500
Aneroid pressure
hPa : 1000

Setting mm : 6.0
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1500
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 6.1
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1500
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 46.0
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 2.5
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 41.5
Tolerance
cm³/1000 str. ± : 0.5
Shutoff solenoid
Volt : 12
Check tolerance
cm³/1000S. : 2.5

KSB/AFB Volt : 12

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 600
Del. quantity
cm3/1000 strokes : 5.0
Tolerance
cm3/1000 str. +- : 1.0
Shutoff solenoid
Volt : 12
KSB/AFB Volt : 12

IDLE DELIVERY

Rated speed rpm : 450
Del. quantity
cm3/1000 strokes : 16.5
Tolerance
cm3/1000 str. +- : 2.0
Spread
cm3/1000 strokes : 2.5
Shutoff solenoid
Volt : 12
KSB/AFB Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2300
Pressure hPa : 1000
Del. quantity
cm3/1000 strokes : 34.0
Tolerance
cm3/1000 str. +- : 3.0
Shutoff solenoid
Volt : 12
KSB/AFB Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm3/1000 strokes : 65.0
Tolerance
cm3/1000 str. +- : 15.0
Shutoff solenoid
Volt : 12
KSB/AFB Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm3/1000 strokes : -10.0
Tolerance
cm3/1000 str. +- : 1.0
Shutoff solenoid
Volt : 12
KSB/AFB Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm3/1000 strokes : -0.2
Tolerance
cm3/1000 str. +- : 0.1
Shutoff solenoid
Volt : 12
KSB/AFB Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm3/1000 strokes : -0.9
Tolerance
cm3/1000 str. +- : 0.1
Shutoff solenoid
Volt : 12
KSB/AFB Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2100
Aneroid pressure
hPa : 1000
SV travel mm : 9.0
Tolerance mm +- : 0.4
Check
tolerance mm +- : 0.7
Shutoff solenoid
Volt : 12
KSB/AFB Volt : 12
Rated speed rpm : 800
Aneroid pressure
hPa : 1000
SV travel mm : 2.1
Tolerance mm +- : 0.4

Check
tolerance mm +- : 0.7
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 500
Aneroid pressure
hPa : 1000

SV travel mm : 4.0
Tolerance mm +- : 0.8

Check
tolerance mm +- : 1.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000

SV travel mm : 6.0
Tolerance mm +- : 1.5

Check
tolerance mm +- : 2.0
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2100
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 7.8
Tolerance bar +- : 0.3
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 800
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 4.0
Tolerance bar +- : 0.3
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 600
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s +- : 22.2

Check tolerance
ccm/10s +- : 22.2
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 2100
Aneroid pressure
hPa : 1000

Overflow quantity
ccm/10s : 138.8
Tolerance
ccm/10s - : 41.6

Check tolerance
ccm/10s +- : 41.6
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2300
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 34.0
Tolerance
cm³/1000 str. +- : 3.0
Check tolerance
cm³/1000s. +- : 5.0
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 2650
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 3.5
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 2450
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 17.0
Tolerance
cm³/1000 str. +- : 4.0
Check tolerance
cm³/1000s. +- : 5.0
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 900

Aneroid pressure
hPa : 350

LDA/

HBA stroke mm : 5.2

Del. quantity
cm³/1000 strokes : 46.5

Tolerance
cm³/1000 str. ± : 0.5

Check tolerance
cm³/1000S. ± : 2.5

Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 2100

Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 46.5

Tolerance
cm³/1000 str. ± : 1.5

Check tolerance
cm³/1000S. ± : 2.5

Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 900

Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 48.5

Tolerance
cm³/1000 str. ± : 1.5

Check tolerance
cm³/1000S. ± : 2.5

Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 1500

Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 46.0

Tolerance
cm³/1000 str. ± : 0.5

Check tolerance
cm³/1000S. ± : 2.0

Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF

CONTROL LEVER, IDLE STOP

Rated speed rpm : 450

Del. quantity
cm³/1000 strokes : 1.5

Tolerance
cm³/1000 str. ± : 1.5

Check tolerance
cm³/1000S. ± : 1.5

Spread
cm³/1000 strokes : 5.0

KSB/AFB Volt : 12

RESIDUAL QUANTITY

Rated speed rpm : 550

Del. quantity
cm³/1000 strokes : 7.0

Tolerance
cm³/1000 str. ± : 1.5

Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

CHECKING LOAD-DEPENDENT START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1500

Del. quantity
cm³/1000 strokes : -14.0

Tolerance
cm³/1000 str. ± : 4.0

Check tolerance
cm³/1000S. ± : 4.0

Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500

Del. quantity
cm³/1000 strokes : -0.9

Tolerance
cm³/1000 str. ± : 0.1

Check tolerance
cm³/1000S. + : 0.1
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Tolerance mm + : 0.3
Check
tolerance mm + : 0.4
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

START TRANSITION

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 40.0
Tolerance
cm³/1000 str. + : 5.0
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 220
Del. quantity
cm³/1000 strokes : 65.0
Tolerance
cm³/1000 str. + : 13.0
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/
HBA stroke mm : 5.2
Dimension K mm : 3,3
Tolerance mm + : +0,1
Dimension KF mm : 5,4
Tolerance mm + : +0,1
Dimension MS mm : 1,2
Tolerance mm + : +0,2

CONTROL LEVER POSITION SET

Control lever
position YA mm : 37,2..39,2

Control lever
position YB mm : 36,6..45,4

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.08.94
Test oil : ISC 4113

Part no. : 0 460 494 349
Pump designation : VE4/9F2100R548

Customer-spec. information

Customer : FIAT-AUTO
Motor : M705 VT19.D
Power KW : 60.0

TEST BENCH REQUIREMENTS

Calibrating-oil return

temperature °C : 45
Tolerance °C +- : 1

Overflow restriction mm : 0.75

Inlet press. bar : 0.35
Tolerance bar +- : 0.05

Test nozzle holder assembly : 1 688 901 022

Opening pressure bar : 130
Tolerance bar +- : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1500
Aneroid pressure hPa : 1000

Setting mm : 6.0
Tolerance mm +- : 0.2
Shutoff solenoid Volt : 12

KSB/AFB Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1500
Aneroid pressure hPa : 1000
Supply pump pressure bar : 6.1
Tolerance bar +- : 0.3
Shutoff solenoid Volt : 12

KSB/AFB Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1500
Aneroid pressure hPa : 1000
Del. quantity cm3/1000 strokes : 46.0
Tolerance cm3/1000 str. +- : 0.5
Spread cm3/1000 strokes : 2.5
Check tolerance cm3/1000S. : 2.5
Shutoff solenoid Volt : 12

KSB/AFB Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 600
Del. quantity cm3/1000 strokes : 41.5
Tolerance cm3/1000 str. +- : 0.5
Shutoff solenoid Volt : 12
Check tolerance cm3/1000S. : 2.5

KSB/AFB Volt : 12

HOUSING-FIXED IDLE SPRING
RESIDUAL QUANTITY SETTING

Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 5.0
Tolerance
cm³/1000 str. + : 1.0
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

IDLE DELIVERY

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 16.5
Tolerance
cm³/1000 str. +- : 2.0
Spread
cm³/1000 strokes : 2.5
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2300
Pressure hPa : 1000
Del. quantity
cm³/1000 strokes : 34.0
Tolerance
cm³/1000 str. + : 3.0
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 65.0
Tolerance
cm³/1000 str. + : 15.0
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

LOAD-DEPENDENT START OF DELIVERY
SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -10.0
Tolerance
cm³/1000 str. +- : 1.0
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 str. +- : 0.1
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -0.9
Tolerance
cm³/1000 str. +- : 0.1
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2100
Aneroid pressure
hPa : 1000
SV travel mm : 9.0
Tolerance mm +- : 0.4
Check
tolerance mm +- : 0.7
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 800
Aneroid pressure
hPa : 1000

SV travel mm : 2.1
Tolerance mm +- : 0.4

Check
tolerance mm \pm : 0.7
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 500
Aneroid pressure
hPa : 1000

SV travel mm : 4.0
Tolerance mm \pm : 0.8

Check
tolerance mm \pm : 1.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000

SV travel mm : 6.0
Tolerance mm \pm : 1.5

Check
tolerance mm \pm : 2.0
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2100
Aneroid pressure
hPa : 1000

Supply pump
pressure bar : 7.8
Tolerance bar \pm : 0.3
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 200
Aneroid pressure
hPa : 1000

Supply pump
pressure bar : 4.0
Tolerance bar \pm : 0.3
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 600
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s \pm : 22.2

Check tolerance
ccm/10s \pm : 22.2
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 2100
Aneroid pressure
hPa : 1000

Overflow quantity
ccm/10s : 138.8
Tolerance
ccm/10s \pm : 41.6

Check tolerance
ccm/10s \pm : 41.6
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2300
Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 34.0
Tolerance
cm³/1000 str. \pm : 3.0
Check tolerance
cm³/1000s. \pm : 5.0
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 2650
Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 3.5
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 2450
Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 17.0
Tolerance
cm³/1000 str. \pm : 4.0

Check tolerance
cm³/1000s. \pm : 5.0
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 900

Aneroid pressure
hPa : 350

LDA/

HBA stroke mm : 5.2

Del. quantity

cm³/1000 strokes : 46.5

Tolerance

cm³/1000 str. ± : 0.5

Check tolerance

cm³/1000S. ± : 2.5

Shutoff solenoid

Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 2100

Aneroid pressure
hPa : 1000

Del. quantity

cm³/1000 strokes : 46.5

Tolerance

cm³/1000 str. ± : 1.5

Check tolerance

cm³/1000S. ± : 2.5

Shutoff solenoid

Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 900

Aneroid pressure
hPa : 1000

Del. quantity

cm³/1000 strokes : 48.5

Tolerance

cm³/1000 str. ± : 1.5

Check tolerance

cm³/1000S. ± : 2.5

Shutoff solenoid

Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 1500

Aneroid pressure
hPa : 1000

Del. quantity

cm³/1000 strokes : 46.0

Tolerance

cm³/1000 str. ± : 0.5

Check tolerance

cm³/1000S. ± : 2.0

Shutoff solenoid

Volt : 12

ELECTR. SHUTOFF

CONTROL LEVER, IDLE STOP

Rated speed rpm : 450

Del. quantity

cm³/1000 strokes : 1.5

Tolerance

cm³/1000 str. ± : 1.5

Check tolerance

cm³/1000S. ± : 1.5

Spread

cm³/1000 strokes : 5.0

KSB/AFB Volt : 12

RESIDUAL QUANTITY

Rated speed rpm : 550

Del. quantity

cm³/1000 strokes : 7.0

Tolerance

cm³/1000 str. ± : 1.5

Shutoff solenoid

Volt : 12

KSB/AFB Volt : 12

CHECKING LOAD-DEPENDENT

START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1500

Del. quantity

cm³/1000 strokes : -14.0

Tolerance

cm³/1000 str. ± : 4.0

Check tolerance

cm³/1000S. ± : 4.0

Shutoff solenoid

Volt : 12

KSB/AFB Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500

Del. quantity

cm³/1000 strokes : -0.9

Tolerance

cm³/1000 str. ± : 0.1

Check tolerance
cm³/1000S. +- : 0.1
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 1.5
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Tolerance mm +- : 0.3
Check
tolerance mm +- : 0.3
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

EXHAUST-GAS RECIRCULATION

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 20.0
Tolerance
cm³/1000 str. +- : 1.0
Check tolerance
cm³/1000S. +- : 2.5
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

START TRANSITION

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 40.0
Tolerance
cm³/1000 str. +- : 5.0
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 220
Del. quantity
cm³/1000 strokes : 65.0
Tolerance
cm³/1000 str. +- : 13.0
Shutoff solenoid
Volt : 12
KSB/AFB Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/
HBA stroke mm : 5.2
Dimension K mm : 3,3
Tolerance mm +- : +-0,1
Dimension KF mm : 5,4
Tolerance mm +- : +-0,2
Dimension MS mm : 1,2
Tolerance mm +- : +-0,2

POTENTIOMETER SET

1. measurement
voltage Volt : 5,0
1. measurement
voltage Volt : 0,8

MICROSWITCH SET

mm : ARF 12,0

CONTROL LEVER POSITION SET

Control lever
position YA mm : 37,2..39,2
Control lever
position YB mm : 36,6..45,4

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.02.95
Test oil : ISO 4113

Part no. : 0 460 494 402
Pump designation : VE4/9F2100R548-1

Customer-spec. information

Customer : FIAT-AUTO
Motor : M721 CT19.N
Power KW : 60.0

TEST BENCH REQUIREMENTS

Calibrating-oil return

temperature °C : 45
Tolerance °C +- : 1

Overflow restriction mm : 0.75

Inlet press. bar : 0.35
Tolerance bar +- : 0.05

Test nozzle holder assembly : 1 688 901 022

Opening pressure bar : 130
Tolerance bar +- : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1500
Aneroid pressure hPa : 1000

Setting mm : 6.0
Tolerance mm +- : 0.2
Shutoff solenoid Volt : 12

KSB/AFB Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1500
Aneroid pressure hPa : 1000
Supply pump pressure bar : 6.1
Tolerance bar +- : 0.3
Shutoff solenoid Volt : 12

KSB/AFB Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1500
Aneroid pressure hPa : 1000
Del. quantity cm3/1000 strokes : 46.0
Tolerance cm3/1000 str. +- : 0.5
Spread cm3/1000 strokes : 2.5
Check tolerance cm3/1000s. : 2.5
Shutoff solenoid Volt : 12

KSB/AFB Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 600
Del. quantity cm3/1000 strokes : 41.5
Tolerance cm3/1000 str. +- : 0.5
Shutoff solenoid Volt : 12
Check tolerance cm3/1000s. : 2.5

KSB/AFB Volt : 12

HOUSING-FIXED IDLE SPRING
RESIDUAL QUANTITY SETTING

Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 5.0
Tolerance
cm³/1000 str. + : 1.0
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

IDLE DELIVERY

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 16.5
Tolerance
cm³/1000 str. + : 2.0
Spread
cm³/1000 strokes : 2.5
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2300
Pressure hPa : 1000
Del. quantity
cm³/1000 strokes : 34.0
Tolerance
cm³/1000 str. + : 3.0
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 65.0
Tolerance
cm³/1000 str. + : 15.0
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

LOAD-DEPENDENT START OF DELIVERY
SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -10.0
Tolerance
cm³/1000 str. + : 1.0
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 str. + : 0.1
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -0.9
Tolerance
cm³/1000 str. + : 0.1
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2100
Aneroid pressure
hPa : 1000

SV travel mm : 9.0
Tolerance mm + : 0.4
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 800
Aneroid pressure
hPa : 1000

SV travel mm : 2.1
Tolerance mm + : 0.4

Check
tolerance mm \pm : 0.7
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 500
Aneroid pressure
hPa : 1000

SV travel mm : 4.0
Tolerance mm \pm : 0.8

Check
tolerance mm \pm : 1.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000

SV travel mm : 6.0
Tolerance mm \pm : 1.5

Check
tolerance mm \pm : 2.0
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2100
Aneroid pressure
hPa : 1000

Supply pump
pressure bar : 7.8
Tolerance bar \pm : 0.3
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 800
Aneroid pressure
hPa : 1000

Supply pump
pressure bar : 4.0
Tolerance bar \pm : 0.3
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 600
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s \pm : 22.2

Check tolerance
ccm/10s \pm : 22.2
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 2100
Aneroid pressure
hPa : 1000

Overflow quantity
ccm/10s : 138.8
Tolerance
ccm/10s \pm : 41.6

Check tolerance
ccm/10s \pm : 41.6
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2300
Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 34.0
Tolerance
cm³/1000 str. \pm : 3.0
Check tolerance
cm³/1000S. \pm : 5.0
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 2650
Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 3.5
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 2450
Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 17.0
Tolerance
cm³/1000 str. \pm : 4.0

Check tolerance
cm³/1000S. \pm : 5.0
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 900

Aneroid pressure
hPa : 350

LDA/

HBA stroke mm : 5.2

Del. quantity
cm³/1000 strokes : 46.5

Tolerance
cm³/1000 str. +- : 0.5

Check tolerance
cm³/1000S. +- : 2.5

Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 2100

Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 46.5

Tolerance
cm³/1000 str. +- : 1.5

Check tolerance
cm³/1000S. +- : 2.5

Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 900

Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 48.5

Tolerance
cm³/1000 str. +- : 1.5

Check tolerance
cm³/1000S. +- : 2.5

Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 1500

Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 46.0

Tolerance
cm³/1000 str. +- : 0.5

Check tolerance
cm³/1000S. +- : 2.0

Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF

CONTROL LEVER, IDLE STOP

Rated speed rpm : 450

Del. quantity
cm³/1000 strokes : 1.5

Tolerance
cm³/1000 str. +- : 1.5

Check tolerance
cm³/1000S. +- : 1.5

Spread
cm³/1000 strokes : 5.0

KSB/AFB Volt : 12

RESIDUAL QUANTITY

Rated speed rpm : 550

Del. quantity
cm³/1000 strokes : 7.0

Tolerance
cm³/1000 str. +- : 1.5

Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

CHECKING LOAD-DEPENDENT START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1500

Del. quantity
cm³/1000 strokes : -14.0

Tolerance
cm³/1000 str. +- : 4.0

Check tolerance
cm³/1000S. +- : 4.0

Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500

Del. quantity
cm³/1000 strokes : -0.9

Tolerance
cm³/1000 str. +- : 0.1

Check tolerance
cm³/1000S. + : 0.1
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Tolerance mm + : 0.3
Check
tolerance mm + : 0.3
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

EXHAUST-GAS RECIRCULATION

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 20.0
Tolerance
cm³/1000 str. + : 1.0
Check tolerance
cm³/1000S. + : 2.5
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

START TRANSITION

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 40.0
Tolerance
cm³/1000 str. + : 5.0
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 220
Del. quantity
cm³/1000 strokes : 65.0
Tolerance
cm³/1000 str. + : 13.0
Shutoff solenoid
Volt : 12
KSB/AFB Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/
HBA stroke mm : 5.2
Dimension K mm : 3,3
Tolerance mm + : +0,1
Dimension KF mm : 5,4
Tolerance mm + : +0,2
Dimension MS mm : 1,2
Tolerance mm + : +0,2

POTENTIOMETER SET

1. measurement
voltage Volt : 5,0
1. measurement
voltage Volt : 1,85

MICROSWITCH SET

: ARF 12,0

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 14.03.95
Test oil : ISO 4113

Part no. : 0 460 494 401
Pump designation : VE4/9F2300R549-1

Customer-spec. information

Customer : FIAT-AUTO
Motor : M721 CA 19.S
Power KW : 51.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 022

Opening pressure
bar : 130
Tolerance bar ± : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1500
Setting mm : 5.9
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 12
KSB/AFB Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1500
Supply pump
pressure bar : 5.9
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12
KSB/AFB Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : 34.0
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 3.0
Shutoff solenoid
Volt : 12
KSB/AFB Volt : 12

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 530
Del. quantity
cm³/1000 strokes : 2.5
Tolerance
cm³/1000 str. ± : 1.0
Shutoff solenoid
Volt : 12
KSB/AFB Volt : 12

IDLE DELIVERY

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 9.5
Tolerance
cm³/1000 str. ± : 1.0
Spread
cm³/1000 strokes : 2.5

Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

HIGH IDLE SETTING

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 16.0
Tolerance
cm³/1000 str. + : 1.0
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2475
Del. quantity
cm³/1000 strokes : 22.0
Tolerance
cm³/1000 str. + : 3.0
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 55.0
Tolerance
cm³/1000 str. + : 20.0
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -8.5
Tolerance
cm³/1000 str. + : 1.0
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 str. + : 0.1
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -0.7
Tolerance
cm³/1000 str. + : 0.1
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2300
SV travel mm : 8.8
Tolerance mm + : 0.4
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 800
SV travel mm : 3.0
Tolerance mm + : 0.4
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 500
SV travel mm : 4.4
Tolerance mm + : 0.8
Check
tolerance mm + : 1.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 1000

SV travel mm : 5.0
 Tolerance mm +- : 1.5
 Check
 tolerance mm +- : 2.0
 Shutoff solenoid
 Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2300
 Supply pump
 pressure bar : 7.7
 Tolerance bar +- : 0.3
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

Rated speed rpm : 800
 Supply pump
 pressure bar : 4.2
 Tolerance bar +- : 0.3
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2300
 Overflow quantity
 ccm/10s : 97.2
 Tolerance
 ccm/10s +- : 41.6
 Check tolerance
 ccm/10s +- : 41.6
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

Rated speed rpm : 600
 Overflow quantity
 ccm/10s : 63.8
 Tolerance
 ccm/10s +- : 22.2
 Check tolerance
 ccm/10s +- : 22.2
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2475

Del. quantity
 cm3/1000 strokes : 22.0
 Tolerance
 cm3/1000 str. +- : 3.0
 Check tolerance
 cm3/1000s. +- : 5.0
 Shutoff solenoid
 Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 2700
 Del. quantity
 cm3/1000 strokes : 6.0
 Check tolerance
 cm3/1000s. +- : 6.0
 Shutoff solenoid
 Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 2900
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. +- : 1.5
 Check tolerance
 cm3/1000s. +- : 1.5
 Shutoff solenoid
 Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 2300
 Del. quantity
 cm3/1000 strokes : 33.0
 Tolerance
 cm3/1000 str. +- : 1.3
 Check tolerance
 cm3/1000s. +- : 2.0
 Shutoff solenoid
 Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 1000
 Del. quantity
 cm3/1000 strokes : 32.7
 Tolerance
 cm3/1000 str. +- : 1.5
 Check tolerance
 cm3/1000s. +- : 2.5
 Shutoff solenoid
 Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 600
 Del. quantity
 cm3/1000 strokes : 30.5

Tolerance
 cm3/1000 str. + : 1.5
 Check tolerance
 cm3/1000S. + : 2.0
 Shutoff solenoid
 Volt : 12

 KSB/AFB Volt : 12

 Rated speed rpm : 1500
 Del. quantity
 cm3/1000 strokes : 34.0
 Tolerance
 cm3/1000 str. + : 0.5
 Check tolerance
 cm3/1000S. + : 2.0
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 450
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. + : 1.5
 Check tolerance
 cm3/1000S. + : 1.5
 Spread
 cm3/1000 strokes : 5.0

HOUSING-FIXED IDLE SPRING
HIGH IDLE

Rated speed rpm : 530
 Del. quantity
 cm3/1000 strokes : 8.0
 Tolerance
 cm3/1000 str. + : 2.5
 Shutoff solenoid
 Volt : 12

 KSB/AFB Volt : 12

RESIDUAL QUANTITY

Rated speed rpm : 600
 Del. quantity
 cm3/1000 strokes : 4.0
 Tolerance
 cm3/1000 str. + : 1.5
 Check tolerance
 cm3/1000S. + : 2.0

Shutoff solenoid
 Volt : 12

 KSB/AFB Volt : 12

IDLE DELIVERY

Rated speed rpm : 350
 Del. quantity
 cm3/1000 strokes : 23.0
 Tolerance
 cm3/1000 str. + : 3.0
 Shutoff solenoid
 Volt : 12

 KSB/AFB Volt : 12

CHECKING LOAD-DEPENDENT
START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1500
 Del. quantity
 cm3/1000 strokes : -13.0
 Tolerance
 cm3/1000 str. + : 4.0
 Check tolerance
 cm3/1000S. + : 4.0
 Shutoff solenoid
 Volt : 12

 KSB/AFB Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
 Del. quantity
 cm3/1000 strokes : -0.7
 Tolerance
 cm3/1000 str. + : 0.1
 Check tolerance
 cm3/1000S. + : 0.1
 Shutoff solenoid
 Volt : 12

 KSB/AFB Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1500
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. + : 1.5
 Shutoff solenoid
 Volt : 12

KSB/AFB Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500

Tolerance mm \pm : 0.3

Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

START TRANSITION

Rated speed rpm : 350

Del. quantity
cm³/1000 strokes : 30.0

Tolerance
cm³/1000 str. \pm : 10.0

Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 130

Del. quantity
cm³/1000 strokes : 60.0

Tolerance
cm³/1000 str. \pm : 15.0

Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,3

Tolerance mm \pm : $\pm 0,1$

Dimension KF mm : 5,5

Tolerance mm \pm : $\pm 0,2$

Dimension MS mm : 1,5

Tolerance mm \pm : $\pm 0,2$

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 37,2..39,2

Control lever
position YB mm : 41,1..49,5

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 14.02.96
Test oil : ISO 4113
Part no. : 0 460 426 241
Pump designation : VE6/12F1250R556-1

Customer-spec. information

Customer : PERKINS
Motor : Q20 Phaser 195Ti

TEST BENCH REQUIREMENTS

Overflow restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar + : 0.05

Test nozzle holde assembly : 1 688 901 027

Opening pressure bar : 250
Tolerance bar + : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 1,25
Tolerance mm + : +0,02
Outlet : C

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1000
Aneroid pressure hPa : 1500
Setting mm : 2.0
Tolerance mm + : 0.1
Shutoff solenoid Volt : 24

SUPPLY PUMP PRESSURE

Rated speed rpm : 1000
Aneroid pressure hPa : 1500
Supply pump pressure bar : 7.5
Tolerance bar + : 0.3
Shutoff solenoid Volt : 24

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 900
Aneroid pressure hPa : 1500
Del. quantity cm3/1000 strokes : 95.5
Tolerance cm3/1000 str. + : 0.5
Spread cm3/1000 strokes : 5.0
Check tolerance cm3/1000S. : 5.0
Shutoff solenoid Volt : 24

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity cm3/1000 strokes : 57.0
Tolerance cm3/1000 str. + : 0.5
Shutoff solenoid Volt : 24
Check tolerance cm3/1000S. : 5.0

IDLE SETTING

Rated speed rpm : 280
Del. quantity cm3/1000 strokes : 11.0

Tolerance
 cm³/1000 str. + : 2.0
 Shutoff solenoid
 Volt : 24
 Spread
 cm³/1000 strokes : 6.5
 Check tolerance
 cm³/1000s. : 6.5

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1400
 Pressure hPa : 1500
 Del. quantity
 cm³/1000 strokes : 45.0
 Tolerance
 cm³/1000 str. + : 3.0
 Shutoff solenoid
 Volt : 24

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 160.0
 Tolerance
 cm³/1000 str. + : 30.0
 Shutoff solenoid
 Volt : 24

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1100
 Aneroid pressure
 hPa : 1500
 SV travel mm : 2.7
 Tolerance mm + : 0.3
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 24
 Rated speed rpm : 900
 Aneroid pressure
 hPa : 1500
 SV travel mm : 1.1
 Tolerance mm + : 0.3
 Check
 tolerance mm + : 0.7

Shutoff solenoid
 Volt : 24
 Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1500
 SV travel mm : 3.3
 Tolerance mm + : 0.4
 Shutoff solenoid
 Volt : 24

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1500
 Supply pump
 pressure bar : 8.5
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 24
 Rated speed rpm : 700
 Aneroid pressure
 hPa : 1500
 Supply pump
 pressure bar : 6.4
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 24

OVERFLOW QUANTITY

Rated speed rpm : 500
 Overflow quantity
 ccm/10s : 63.8
 Tolerance
 ccm/10s + : 22.2
 Check tolerance
 ccm/10s + : 22.2
 Shutoff solenoid
 Volt : 24
 Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1500
 Overflow quantity
 ccm/10s : 97.2
 Tolerance
 ccm/10s + : 41.6
 Check tolerance
 ccm/10s + : 41.6
 Shutoff solenoid
 Volt : 24

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1400
 Aneroid pressure
 hPa : 1500
 Del. quantity
 cm3/1000 strokes : 45.0
 Tolerance
 cm3/1000 str. + : 3.0
 Check tolerance
 cm3/1000S. + : 6.0
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 1350
 Aneroid pressure
 hPa : 1500
 Del. quantity
 cm3/1000 strokes : 80.0
 Tolerance
 cm3/1000 str. + : 15.0
 Check tolerance
 cm3/1000S. + : 15.0
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 1480
 Aneroid pressure
 hPa : 1500
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. + : 1.5
 Check tolerance
 cm3/1000S. + : 1.5
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 700
 Aneroid pressure
 hPa : 700
 Del. quantity
 cm3/1000 strokes : 82.0
 Tolerance
 cm3/1000 str. + : 0.5
 Check tolerance
 cm3/1000S. + : 3.5
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1500
 Del. quantity
 cm3/1000 strokes : 104.0
 Tolerance
 cm3/1000 str. + : 2.5
 Check tolerance
 cm3/1000S. + : 3.5
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 700
 Aneroid pressure
 hPa : 1500
 Del. quantity
 cm3/1000 strokes : 97.0
 Tolerance
 cm3/1000 str. + : 3.0
 Check tolerance
 cm3/1000S. + : 4.0
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 900
 Aneroid pressure
 hPa : 1500
 Del. quantity
 cm3/1000 strokes : 95.5
 Tolerance
 cm3/1000 str. + : 0.5
 Check tolerance
 cm3/1000S. + : 3.5
 Shutoff solenoid
 Volt : 24

MECHANICAL SHUTOFF

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 1500
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. + : 1.5
 Check tolerance
 cm3/1000S. + : 1.5
 Shutoff solenoid
 Volt : 24

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 280
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. + : 1.5
 Check tolerance
 cm3/1000S. + : 1.5

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 280
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. + : 1.5
 Spread
 cm3/1000 strokes : 5.0

Check tolerance
cm³/1000S. +- : 1.5

IDLE DELIVERY

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 1.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 5.0
Tolerance
cm³/1000 str. +- : 4.0
Check tolerance
cm³/1000S. +- : 5.0
Shutoff solenoid
Volt : 24

START TRANSITION

Rated speed rpm : 230
Del. quantity
cm³/1000 strokes : 70.0
Tolerance
cm³/1000 str. +- : 20.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 130
Del. quantity
cm³/1000 strokes : 160.0
Tolerance
cm³/1000 str. +- : 30.0
Shutoff solenoid
Volt : 24

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,7
Tolerance mm +- : +-0,1
Dimension KF mm : 6,4
Tolerance mm +- : +-0,2
MS1 dimension mm : 1,36
Tolerance mm +- : +0,15/-0,1
KSB travel mm : 8,5

CONTROL LEVER POSITION SET

Control lever
position YA mm : 37,2..38,2

Control lever
position YB mm : 44,9..53,5

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 27.07.95
Test oil : ISO 4113

Part no. : 0 460 426 230
Pump designation : VE6/12F1350R561

Customer-spec. information
Customer : IVECO-FIAT
Motor : 8060.45.4385

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 55
Tolerance °C ± : 1

Overflow
restriction mm : 0.75

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 027

Opening pressure
bar : 250
Tolerance bar ± : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1100
Aneroid pressure
hPa : 1000
Setting mm : 2.7
Tolerance mm ± : 0.1
Shutoff solenoid
Volt : 24

SUPPLY PUMP PRESSURE

Rated speed rpm : 1100
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 8.2
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 24

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 700
Aneroid pressure
hPa : 1000
Del. quantity
cm3/1000 strokes : 65.0
Tolerance
cm3/1000 str. ± : 0.5
Spread
cm3/1000 strokes : 3.5
Check tolerance
cm3/1000S. : 5.0
Shutoff solenoid
Volt : 24

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 48.0
Tolerance
cm3/1000 str. ± : 0.5
Shutoff solenoid
Volt : 24
Check tolerance
cm3/1000S. : 5.0

IDLE SETTING

Rated speed rpm : 350
Del. quantity
cm3/1000 strokes : 12.0
Tolerance
cm3/1000 str. ± : 2.0
Shutoff solenoid
Volt : 24
Spread
cm3/1000 strokes : 4.0

Check tolerance
cm³/1000s. : 5.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1500
Pressure hPa : 1000
Del. quantity
cm³/1000 strokes : 40.0
Tolerance
cm³/1000 str. + : 3.0
Shutoff solenoid
Volt : 24

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 85.0
Tolerance
cm³/1000 str. + : 25.0
Shutoff solenoid
Volt : 24

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1200
Aneroid pressure
hPa : 1000
SV travel mm : 3.8
Tolerance mm + : 0.3
Shutoff solenoid
Volt : 24

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000

SV travel mm : 1.5
Tolerance mm + : 0.3
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 24

Rated speed rpm : 1350
Aneroid pressure
hPa : 1000

SV travel mm : 4.9

Tolerance mm + : 0.3
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 24

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1350
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 9.7
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 24

Rated speed rpm : 600
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 5.5
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 24

OVERFLOW QUANTITY

Rated speed rpm : 1350
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 138.8
Tolerance
ccm/10s + : 41.6

Check tolerance
ccm/10s + : 41.6
Shutoff solenoid
Volt : 24

Rated speed rpm : 600
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 111.1
Tolerance
ccm/10s + : 41.6

Check tolerance
ccm/10s + : 41.6
Shutoff solenoid
Volt : 24

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1500
Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 40.0
Tolerance
cm³/1000 str. + : 3.0
Check tolerance
cm³/1000S. + : 6.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 1450
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 53.0
Tolerance
cm³/1000 str. + : 8.0
Check tolerance
cm³/1000S. + : 10.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 1600
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 600
Aneroid pressure
hPa : 400
Del. quantity
cm³/1000 strokes : 60.5
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 4.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 1350
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 59.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 3.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 1200
Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 61.0
Tolerance
cm³/1000 str. + : 2.0
Check tolerance
cm³/1000S. + : 3.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 600
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 68.0
Tolerance
cm³/1000 str. + : 2.0
Check tolerance
cm³/1000S. + : 3.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 700
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 65.0
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 3.5
Shutoff solenoid
Volt : 24

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5
Spread
cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. + : 1.5

Spread
cm³/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 425
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 375
Del. quantity
cm³/1000 strokes : 5.0
Tolerance
cm³/1000 str. ± : 3.0
Check tolerance
cm³/1000S. ± : 5.0
Shutoff solenoid
Volt : 24

START TRANSITION

Rated speed rpm : 250
Del. quantity
cm³/1000 strokes : 40.0
Tolerance
cm³/1000 str. ± : 15.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 130
Del. quantity
cm³/1000 strokes : 85.0
Tolerance
cm³/1000 str. ± : 25.0
Shutoff solenoid
Volt : 24

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,6
Tolerance mm ± : ±0,1
Dimension KF mm : 6,0
Tolerance mm ± : ±0,2
MS1 dimension mm : 1,6
Tolerance mm ± : +0,15/0,1
KSB travel mm : 10,0

CONTROL LEVER POSITION SET

Control lever
position YA mm : 37,9..39,9

Control lever
position YB mm : 42,5..47,7

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 10.01.96
Test oil : ISO 4113

Part no. : 0 460 424 101
Pump designation : VE4/12F1200R568

Customer-spec. information

Customer : MAN
Motor : D 0824 LFL 01
Power kW : 114.0

TEST BENCH REQUIREMENTS

Calibrating-oil return

temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holder
assembly : 1 688 901 110

Opening pressure
bar : 250
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 850
Aneroid pressure
hPa : 1500

Setting mm : 2.2
Tolerance mm ± : 0.2

KSB/AFB Volt : 24

SUPPLY PUMP PRESSURE

Rated speed rpm : 850
Aneroid pressure
hPa : 1500

Supply pump
pressure bar : 6.7
Tolerance bar ± : 0.3

KSB/AFB Volt : 24

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1000
Aneroid pressure
hPa : 1500

Del. quantity
cm³/1000 strokes : 108.0

Tolerance
cm³/1000 str. ± : 0.5

Spread
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 4.5

KSB/AFB Volt : 24

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 61.0

Tolerance
cm³/1000 str. ± : 0.5

Check tolerance
cm³/1000S. : 4.5

KSB/AFB Volt : 24

IDLE SETTING

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 15.0

Tolerance
cm³/1000 str. ± : 2.0

Spread
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 6.5

KSB/AFB Volt : 24

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1300
Pressure hPa : 1500
Del. quantity
cm³/1000 strokes : 75.0
Tolerance
cm³/1000 str. + : 3.0

KSB/AFB Volt : 24

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 135.0
Tolerance
cm³/1000 str. + : 30.0

KSB/AFB Volt : 24

SET GRADUATED STARTING DELIVERY CONTROL LEVER, IDLE STOP

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 45.0
Tolerance
cm³/1000 str. + : 1.0

KSB/AFB Volt : 24

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1000
Aneroid pressure
hPa : 1500

SV travel mm : 4.0
Tolerance mm + : 0.4
Check
tolerance mm + : 0.7

KSB/AFB Volt : 24

Rated speed rpm : 750

Aneroid pressure
hPa : 1500

SV travel mm : 1.1
Tolerance mm + : 0.4
Check
tolerance mm + : 0.7

KSB/AFB Volt : 24

Rated speed rpm : 1200
Aneroid pressure
hPa : 1500

SV travel mm : 4.9
Tolerance mm + : 0.4
Check
tolerance mm + : 0.4

KSB/AFB Volt : 24

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1200
Aneroid pressure
hPa : 1500
Supply pump
pressure bar : 8.5
Tolerance bar + : 0.3

KSB/AFB Volt : 24

Rated speed rpm : 550
Aneroid pressure
hPa : 1500
Supply pump
pressure bar : 5.2
Tolerance bar + : 0.3

KSB/AFB Volt : 24

OVERFLOW QUANTITY

Rated speed rpm : 550
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s + : 22.2

Check tolerance
ccm/10s + : 22.2

KSB/AFB Volt : 24

Rated speed rpm : 1200
Aneroid pressure
hPa : 1500
Overflow quantity
ccm/10s : 97.2

Tolerance
ccm/10s +- : 41.6

Check tolerance
ccm/10s +- : 41.6

KSB/AFB Volt : 24

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1300
Aneroid pressure
hPa : 1500
Del. quantity
cm3/1000 strokes : 75.0
Tolerance
cm3/1000 str. +- : 3.0

KSB/AFB Volt : 24

Rated speed rpm : 1340
Aneroid pressure
hPa : 1500
Del. quantity
cm3/1000 strokes : 12.0

KSB/AFB Volt : 24

Rated speed rpm : 1260
Aneroid pressure
hPa : 1500
Del. quantity
cm3/1000 strokes : 100.0
Check tolerance
cm3/1000S. +- : 5.0

KSB/AFB Volt : 24

Rated speed rpm : 1370
Aneroid pressure
hPa : 1500
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. +- : 1.5

KSB/AFB Volt : 24

Rated speed rpm : 550
Aneroid pressure
hPa : 400

LDA/
HBA stroke mm : 7.6
Del. quantity
cm3/1000 strokes : 81.0
Tolerance
cm3/1000 str. +- : 0.5

Check tolerance
cm3/1000S. +- : 2.5

KSB/AFB Volt : 24

Rated speed rpm : 1200
Aneroid pressure
hPa : 1500
Del. quantity
cm3/1000 strokes : 103.0
Tolerance
cm3/1000 str. +- : 2.5
Check tolerance
cm3/1000S. +- : 4.0

KSB/AFB Volt : 24

Rated speed rpm : 700
Aneroid pressure
hPa : 1500
Del. quantity
cm3/1000 strokes : 112.5
Tolerance
cm3/1000 str. +- : 2.5
Check tolerance
cm3/1000S. +- : 5.5

KSB/AFB Volt : 24

Rated speed rpm : 850
Aneroid pressure
hPa : 1500
Del. quantity
cm3/1000 strokes : 114.0
Tolerance
cm3/1000 str. +- : 2.5
Check tolerance
cm3/1000S. +- : 4.5

KSB/AFB Volt : 24

Rated speed rpm : 550
Aneroid pressure
hPa : 1500
Del. quantity
cm3/1000 strokes : 114.0
Tolerance
cm3/1000 str. +- : 4.5
Check tolerance
cm3/1000S. +- : 6.0

KSB/AFB Volt : 24

Rated speed rpm : 1000
Aneroid pressure
hPa : 1500
Del. quantity
cm3/1000 strokes : 108.0
Tolerance
cm3/1000 str. +- : 0.5

Check tolerance
cm³/1000S. + - : 2.5

MECHANICAL SHUTOFF

Rated speed rpm : 1200
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + - : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. + - : 1.5
Spread
cm³/1000 strokes : 5.0

KSB/AFB Volt : 24

IDLE DELIVERY

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + - : 1.5
Check tolerance
cm³/1000S. + - : 1.5

KSB/AFB Volt : 24

START TRANSITION

Rated speed rpm : 430
Del. quantity
cm³/1000 strokes : 68.0
Tolerance
cm³/1000 str. + - : 20.0

KSB/AFB Volt : 24

Rated speed rpm : 330
Del. quantity
cm³/1000 strokes : 90.0
Tolerance
cm³/1000 str. + - : 15.0

KSB/AFB Volt : 24

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/
HBA stroke mm : 7.6
Dimension K mm : 3,7
Tolerance mm + - : +0,1
Dimension KF mm : 6,4
Tolerance mm + - : +0,2
MS1 dimension mm : 1,5
Tolerance mm + - : +0,15/-0,1
KSB travel mm : 7,1

MICROSWITCH SET

mm : GST 71,9

CONTROL LEVER POSITION SET

Control lever
position YA mm : 37,4..40,4

Control lever
position YB mm : 35,4..40,6

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 02.11.95
Test oil : ISO 4113

Part no. : 0 460 494 353
Pump designation : VE4/9F225GR571

Customer-spec. information

Customer : OPEL
Motor : 1,7 DT-LC
Power KW : 50.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 022

Opening pressure
bar : 130
Tolerance bar ± : 3

Test Lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1500
Aneroid pressure
hPa : 1000

Setting mm : 4.2
Tolerance mm ± : 0.1
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1500
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 6.4
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1200
Aneroid pressure
hPa : 1000
Del. quantity
cm3/1000 strokes : 33.3
Tolerance
cm3/1000 str. ± : 0.5
Spread
cm3/1000 strokes : 2.5
Check tolerance
cm3/1000S. : 2.5
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Check tolerance
cm3/1000S. : 2.5

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 800
Del. quantity
cm3/1000 strokes : 4.5
Tolerance
cm3/1000 str. ± : 0.5
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

IDLE DELIVERY

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 17.0
Tolerance
cm³/1000 str. ± : 1.0
Spread
cm³/1000 strokes : 2.5
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

HIGH IDLE SETTING

Rated speed rpm : 540
Del. quantity
cm³/1000 strokes : 9.0
Tolerance
cm³/1000 str. ± : 1.0
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2550
Pressure hPa : 1000
Del. quantity
cm³/1000 strokes : 24.0
Tolerance
cm³/1000 str. ± : 2.0
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 44.0
Tolerance
cm³/1000 str. ± : 8.0
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

SET GRADUATED STARTING DELIVERY CONTROL LEVER, IDLE STOP

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 44.0

Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1000
Pressure hPa : 1000
Del. quantity
cm³/1000 strokes : -9.0
Tolerance
cm³/1000 str. ± : 1.0
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 str. ± : 0.1
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : -0.6
Tolerance
cm³/1000 str. ± : 0.1
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2250
Aneroid pressure
hPa : 1000
SV travel mm : 7.7

Tolerance mm +- : 0.3
 Check
 tolerance mm +- : 0.6
 Shutoff solenoid
 Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 1000
 Aneroid pressure
 hPa : 1000

SV travel mm : 1.7
 Tolerance mm +- : 0.3
 Check
 tolerance mm +- : 0.6
 Shutoff solenoid
 Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 400
 Aneroid pressure
 hPa : 1000

SV travel mm : 1.8
 Tolerance mm +- : 1.0
 Check
 tolerance mm +- : 1.2
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 800
 Aneroid pressure
 hPa : 1000

SV travel mm : 3.0
 Tolerance mm +- : 1.0
 Check
 tolerance mm +- : 1.2
 Shutoff solenoid
 Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2250
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 8.5
 Tolerance bar +- : 0.3
 Shutoff solenoid
 Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 1000
 Aneroid pressure
 hPa : 1000

Supply pump
 pressure bar : 5.0
 Tolerance bar +- : 0.3
 Shutoff solenoid
 Volt : 12

KSB/AFB Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2250
 Aneroid pressure
 hPa : 1000
 Overflow quantity
 ccm/10s : 97.2
 Tolerance
 ccm/10s +- : 41.6

Check tolerance
 ccm/10s +- : 41.6
 Shutoff solenoid
 Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 700
 Aneroid pressure
 hPa : 1000
 Overflow quantity
 ccm/10s : 63.8
 Tolerance
 ccm/10s +- : 22.2

Check tolerance
 ccm/10s +- : 22.2
 Shutoff solenoid
 Volt : 12

KSB/AFB Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2550
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm3/1000 strokes : 24.0
 Tolerance
 cm3/1000 str. +- : 2.0
 Check tolerance
 cm3/1000s. +- : 4.0
 Shutoff solenoid
 Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 2725
 Aneroid pressure
 hPa : 1000

Del. quantity
 cm3/1000 strokes : 7.0
 Shutoff solenoid
 Volt : 12

 KSB/AFB Volt : 12

 Rated speed rpm : 2950
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm3/1000 strokes : 2.0
 Tolerance
 cm3/1000 str. +- : 2.0
 Check tolerance
 cm3/1000S. +- : 2.0
 Shutoff solenoid
 Volt : 12

 KSB/AFB Volt : 12

 Rated speed rpm : 2250
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm3/1000 strokes : 36.5
 Tolerance
 cm3/1000 str. +- : 1.3
 Check tolerance
 cm3/1000S. +- : 2.3
 Shutoff solenoid
 Volt : 12

 KSB/AFB Volt : 12

 Rated speed rpm : 500
 Del. quantity
 cm3/1000 strokes : 31.0
 Tolerance
 cm3/1000 str. +- : 2.5
 Check tolerance
 cm3/1000S. +- : 3.0
 Shutoff solenoid
 Volt : 12

 KSB/AFB Volt : 12

 Rated speed rpm : 1800
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm3/1000 strokes : 36.2
 Tolerance
 cm3/1000 str. +- : 1.5
 Check tolerance
 cm3/1000S. +- : 2.3
 Shutoff solenoid
 Volt : 12

 KSB/AFB Volt : 12

Rated speed rpm : 700
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm3/1000 strokes : 31.5
 Tolerance
 cm3/1000 str. +- : 1.5
 Check tolerance
 cm3/1000S. +- : 3.0
 Shutoff solenoid
 Volt : 12

 KSB/AFB Volt : 12

 Rated speed rpm : 1200
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm3/1000 strokes : 33.3
 Tolerance
 cm3/1000 str. +- : 0.5
 Check tolerance
 cm3/1000S. +- : 2.3
 Shutoff solenoid
 Volt : 12

 Rated speed rpm : 700
 Aneroid pressure
 hPa : 50
 Tolerance
 cm3/1000 str. +- : 0.5
 Check tolerance
 cm3/1000S. +- : 0.5
 Check tolerance
 cm3/1000S. +- : 0.5
 Shutoff solenoid
 Volt : 12

 KSB/AFB Volt : 12

 Rated speed rpm : 700
 Aneroid pressure
 hPa : 170
 Del. quantity
 cm3/1000 strokes : 2.4
 Tolerance
 cm3/1000 str. +- : 1.0
 Check tolerance
 cm3/1000S. +- : 1.0
 Shutoff solenoid
 Volt : 12

 KSB/AFB Volt : 12

ELECTR. SHUTOFF
 CONTROL LEVER, IDLE STOP

Rated speed rpm : 485
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000S. + : 1.5
 Spread
 cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 485
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. + : 1.5
 Spread
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. + : 1.5
 Spread
 cm³/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 485
 Del. quantity
 cm³/1000 strokes : 9.0
 Tolerance
 cm³/1000 str. + : 2.5
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

CHECKING LOAD-DEPENDENT START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1000
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : -11.0
 Tolerance
 cm³/1000 str. + : 4.0
 Check tolerance
 cm³/1000S. + : 4.0
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1000
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : -0.6
 Tolerance
 cm³/1000 str. + : 0.1
 Check tolerance
 cm³/1000S. + : 0.1
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1000
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 6.0
 Tolerance
 cm³/1000 str. + : 1.0
 Check tolerance
 cm³/1000S. + : 1.0
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1000
 Aneroid pressure
 hPa : 1000
 Tolerance mm + : 0.3
 Check
 tolerance mm + : 0.4
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

EXHAUST-GAS RECIRCULATION

Rated speed rpm : 1000
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm³/1000 strokes : 16.0
 Tolerance
 cm³/1000 str. + : 1.0
 Check tolerance
 cm³/1000S. + : 2.5
 Shutoff solenoid
 Volt : 12

KSB/AFB Volt : 12

START TRANSITION

Rated speed rpm : 400

Del. quantity

cm³/1000 strokes : 32.0

Tolerance

cm³/1000 str. +- : 5.0

Shutoff solenoid

Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 250

Del. quantity

cm³/1000 strokes : 50.0

Tolerance

cm³/1000 str. +- : 10.0

Shutoff solenoid

Volt : 12

KSB/AFB Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,3

Tolerance mm +- : +-0,1

Dimension KF mm : 5,4

Tolerance mm +- : +-0,2

Dimension MS mm : 0,9

Tolerance mm +- : +-0,2

MICROSWITCH

SET

mm : ARF12,0

CONTROL LEVER POSITION

SET

Control lever

position YA mm : 24,2..26,2

Control lever

position YB mm : 53,0..63,6

End of test-specification sheet